GEF-6 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project
TYPE OF TRUST FUND:GEF Trust Fund

For more information about GEF, visit TheGEF.org

- **PART I: PROJECT INFORMATION**

Project Title:	Creating and sustaining markets for energy efficiency		
Country(ies):	India	GEF Project ID:[1]	9258
GEF Agency(ies):	ADB and UNEP	GEF Agency Project ID:	01381
Other Executing Partner(s):	Energy Efficiency Services Limited (EESL)	Submission Date:	10 August 2015
GEF Focal Area(s):	Climate Change	Project Duration(Months)	60 months
Integrated Approach Pilot	IAP-Cities ☐ IAP-Commodities ☐ IAP-Food Security ☐		Corporate Program: SGP ☐
Name of parent program:		Agency Fee ($)	1,697,037

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES[2]

Objectives/Programs(Focal Areas, Integrated Approach Pilot, Corporate Programs)	**Trust Fund**	**(in $)**	
		GEF Project Financing	**Co-financing**
CCM-1 Program 1	GEFTF	18,855,963	434,200,000
(select)(select)(select)	(select)		
(select)(select)(select)	(select)		
(select)(select)(select)	(select)		
(select)(select)(select)	(select)		
(select)(select)(select)	(select)		
(select)(select)(select)	(select)		
(select)(select)(select)	(select)		
(select)(select)(select)	(select)		
Total Project Cost		18,855,963	434,200,000

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: To reduce greenhouse gas (GHG) emissions through energy efficiency through scaling up and new technology applications

Project Components	**Financing Type[3]**	**Project Outcomes**	**Project Outputs**	**Trust Fund**	**(in $)**	
					GEF Project Financing	**Co-financing**
Expanding and sustaining investments in existing market sectors	TA	Energy efficiency improved through the installation of street lighting(SL) and domestic LEDs (DL) Baseline: zero Target: to be defined in the PPG phase Indicator: Energy	1. Due diligence conducted (ADB) 2. Energy savings contracts signed and executed with ULBs, DISCOMs and consumers (ADB) 3. Gender sensitive social marketing campaigns scaled up	GEF TF	400,000	1,000,000

[1] Project ID number will be assigned by GEFSEC and to be entered by Agency in subsequent document submissions.
[2] When completing Table A, refer to the excerpts on *GEF 6 Results Frameworks for GETF, LDCF and SCCF*.
[3] Financing type can be either investment or technical assistance.

		savings in MW hours	for target consumers, DISCOMs, ULBs, and suppliers (UNEP/ADB) 4. Review and recommendations of business models for each market sector conducted (SL and DL), including MRV protocols (UNEP)			
	INV		5. Supply tenders for installation and maintenance awarded and contracts signed (ADB) 6. Revolving fund, or similar sustainable financing mechanism designed and operationalized (ADB)	GEFTF	1,345,806	399,000,000
Building market diversification	TA	Energy efficiency improved through the installation ofceiling fans, tri-generation technologies and smart-grid application Baseline: zero Target: to be defined in the PPG phase Indicator: Energy savings in MW hours from installedtechnologies and applications	7. Standards and specifications for technology tenders developed (UNEP) 8. New ESCO business models for ceiling fans, tri-generation and smart grid technologiesvalidated (UNEP) 9. Financial and Energy savings performance of super efficient ceiling fans, tri-generation and smart grid investments monitored, measured and reported (UNEP) 10. Gender sensitive social marketing campaigns conducted for target consumers, DISCOMs, ULBs, and suppliers (UNEP)	GEF TF	1,855,099	
	INV		11. Super efficient ceiling fans, tri-generation and smart	GEFTF	13,000,000	31,200,000

			grid investments in 10 projects conducted (ADB)			
Replication and scaling up	TA	Enabling conditions created to support EESL growth strategy targeting US$ 300 million in investments across all 5 technologies (SL, DL, CF, TG, SG) Baseline: zero Target: one (growth strategy) Indicator: Growth strategy is endorsed and investment pipeline prepared	12. Growth strategy drafted, based on collected experience, lessons, data from components 1 & 2, on energy and financial savings and a review of other technologies EESL could expand into in the medium to long term. 13. Business processes automated at EESL. 14. Energy savings plans and capacity-building for ULBs, DISCOMs, facilities owners and managers for implementation of energy savings plans conducted (UNEP) 15. Investment opportunities and potential sources of finance identified / and screened (UNEP/ADB)	GEF TF	1,657,155	2,000,000
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
			Subtotal		18,258,060	433,200,000
			Project Management Cost (PMC)[4]	(select)	597,903	1,000,000
			Total Project Cost		18,855,963	434,200,000

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: ( )

C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount ($)
Multilateral Development Bank	ADB	Loan	200,000,000

[4] For GEF Project Financing up to $2 million, PMC could be up to10% 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.

Multilateral Development Bank	ADB	TA	1,000,000
National Government	EESL	Equity and Loans	199,000,000
National Government	EESL	In-kind	2,960,000
International Organisation	UNEP	In-kind	40,000
Bilateral	KfW	Loan	31,200,000
(select)		(select)	
Total Co-financing			434,200,000

D. INDICATIVE TRUST FUND RESOURCESREQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS[a)]

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee (b)[b)]	Total (c)=a+b
ADB	GEFTF	India	Climate Change	Climate Change	14,345,806	1,114,081*	15,459,888
UNEP	GEFTF	India	Climate Change	Climate Change	4,510,157	582,956*	5,093,112
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
Total GEF Resources					18,855,963	1,697,037	20,553,000

**IA fee calculations includes equal sharing in project preparation*

a) Refer to the Fee Policy for GEF Partner Agencies.

E. PROJECT PREPARATION GRANT (PPG)[5]

Is Project Preparation Grant requested? Yes☒ No ☐ If no, skip item E.

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

Project Preparation Grant amount requested: $300,000				PPG Agency Fee: 27,000			
GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in $)		
					PPG (a)	Agency Fee[6](b)	Total c = a + b
ADB	GEF TF	India	Climate Change	Climate Change	150,000	13,500	163,500
UNEP	GEF TF	India	Climate Change	Climate Change	150,000	13,500	163,500
(select)	(select)		(select)	(select as applicable)			0
Total PPG Amount					**300,000**	**27,000**	**327,000**

F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS[7]

[5]PPG requested amount is determined by the size of the GEF Project Financing (PF) as follows: Up to $50k for PF up to$2m (for MSP); up to $100k for PF up to $3m; $150k for PF up to $6m; $200k for PF up to $10m; and $300k for PF above $10m. 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 Agency fee over the GEF Project Financing amount requested.

[7]Provide those indicator values in this table to the extent applicable to your proposed project. 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-

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	*Hectares*
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	*Hectares*
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;	*Number of freshwater basins*
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	*Percent of fisheries, by volume*
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO_{2e} mitigated (include both direct and indirect)	*8.53 million metric tons*
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	*metric tons*
	Reduction of 1000 tons of Mercury	*metric tons*
	Phase-out of 303.44 tons of ODP (HCFC)	*ODP tons*
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	*Number of Countries: ONE*
	Functional environmental information systems are established to support decision-making in at least 10 countries	*Number of Countries:*

term and at the conclusion of the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and/or SCCF.

PART II: PROJECT JUSTIFICATION

1. *Project Description*

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

India's CO2 emissions from fuel combustion have increased almost 200% between 1971 and 2011 from 200.1 million tons to 1,745.1 million tons - of which 900 million tons in 2011 were from electricity and heat production (IEA, 2013, p. 52-73). In 2012 India was the fourth largest energy consumer in the world, behind the United States, China, and Russia. In the same year the country had the tenth-largest economy as measured in 2012 U.S. dollars (converted at official exchange rates), and the third largest, when GDP is adjusted for inflation and purchasing power. Inflation-adjusted GDP has grown at over 7% per year since 2000, with a dip to around 5% in 2012 according to the Indian Central Statistical Organization (CSO). This pace of economic growth, coupled against a projected increase in population of an additional 400 million by 2050 (making India the world's most populous nation with 1.6 billion people, according to Pew Research Centre data), underscores the need for effective supply and demand side management of energy resources.

Energy policy in India has been focused on securing adequate energy resources to meet the growing demands. Primary energy consumption more than doubled between 1990 and 2011, while the country's dependence on imported energy resources and inconsistent energy sector reform have made it difficult to meet increasing demand. India has 236.38 gigawatts of installed electric capacity, of which 70% is generated by coal-fired plants. Estimated electricity consumption increased from 43,724 GWh in 1970-71 to 772,603 GWh in 2011-12, marked by a 11.2% increase between 2010-11 and 2011-12. The deficit in energy supply, along with the significant rise in energy demand in the country, has necessitated a greater focus on energy efficiency.

Making clean and affordable energy and electricity available to consumers has become a growing concern for the Government of India (GOI) and other stakeholders. In order to mitigate the climate effects of increasing demand, India set a voluntary target in 2009 to reduce the greenhouse gas (GHG) emissions intensity of its gross domestic product (GDP) by 20% to 25% over the 2005 levels by 2020.2 In fact, India's CO2 "intensity" (measured by grams of CO2 per kilowatt-hour of electrical output) has improved by 7% between 2005 and 2011 (Pales and West, OECD/IEA, 2014). The GOI has also determined that increased end-use efficiency is essential in order to contain energy demand without sacrificing growth. A target was set in 2010, to reduce the energy intensity of its economy by 20-25% below 2005 levels by 2020 (MOEF, 2010). Achieving this target will require about US $68 billion of investment in efficiency measures (ADB, 2013). A number of barriers exist, however, which include: (i) regulatory: subsidized electricity and voluntary nature of EE programs; (ii) institutional: capacity to support needed scaling of EE is limited; (iii) financing: up-front costs can be high for EE technologies, but project sizes are small from a perspective of financial institutions, with returns often difficult to analyze; and (iv) awareness: limited understanding of EE technologies and associated benefits, which limit the rate of adoption (ADB, 2015).

The GOI has focused part of its efforts on energy demand management through policy measures to encourage energy efficiency in various sectors. Both government policies and efforts by multilateral and bilateral organizations to conserve energy across a wide range of sectors have supported the emergence and growth of new domestic and international energy service companies (ESCOs). The business proposition of the ESCO is essentially to identify opportunities for increasing the energy efficiency of industrial and commercial units, among others, through design of comprehensive energy solutions, and implementation of different financial models. From three ESCOs in the early 1990s, the country has witnessed growth in the number to 114 in 2011. The GOI has strengthened the institutional and legal framework through the Energy Conservation Act in 2001, which, among others, createdthe Bureau of Energy Efficiency (BEE). Further measures in 2009 established Energy Efficiency Services Ltd (EESL) as a joint venture "public sector undertaking" under the Ministry of Power. The present authorized capital of EESL is US $84 million which will be raised by four public sector companies, NTPC, Power Grid Corporation of India (POWERGRID), Rural Electrical Corporation Ltd (REC) and Power Finance Corporation Ltd (PFC)

EESL has a mandate to work as an ESCO to design and implement energy efficiency projects, provide consultancy services under the Clean Development Mechanism CDM), and support capacity building of State Designated Agencies (SDAs), utilities, financial institutions and other stakeholders. EESL also leads market-related actions of the National Mission for Enhance Energy Efficiency (NMEEE).For ESCOs in India there is an estimated potential 183.5 billion kWh per year in energy savings, with an estimated market value of US $18 billion**,** based on reports prepared by the Asian Development Bank (AsDB) and the Bureau of Energy Efficiency (BEE).

Energy efficiency lending programs in India, were given impetus in part, by the "Three Country Energy Efficiency Project" (3CEE), which intended to achieve major increases in energy efficiency investments by the domestic financial sectors in Brazil, China and India, overcome barriers to financing energy efficiency projects, and to identify financial mechanisms adapted to each country's conditions (Morel, 2008). Five of India's largest banks have established small energy-efficiency lending programs, including the State Bank of India, Canara Bank and Union Bank of India. Programs are gaining traction, and primarily target existing bank clients, although the Union Bank program lends to small and medium-sized enterprises (SMEs) with no liability to other banks. The banks will finance 75 to 90 per cent of the project cost, but all three banks have a maximum lending limit of US$220,000 (INR10 million) (Sridharen, 2005).

In order for ESCO clients to be able to obtain market-rate financing for energy efficiency projects, banks must recognize the savings potential that an ESCO's involvement can offer. Despite implementing a number of demonstration projects in commercial and industrial sectors, ESCOs have not yet achieved a critical mass which will be sufficient to support uptake and scaling up to meet India's sustainable energy needs.There are a number of barriers which constrain the performance of ESCOs:

- Unclear understanding of the ESCO business model: Many client companies and organization do not have sufficient awareness of how the ESCO operates and how financial models will generat co-benefits. Moreover, contract negotiations are often protracted and arduous (Urge-Vorsatz, et al., 2007)

- Limted access to finance: Most projects undertaken by the ESCOs are capital intensive. ESCOs are dependent on either the prospective clients or financial institutions for funding. Banks often lack awareness on the savings potential of EE projects, which result in higher interest rates and capital costs. In a survey conducted by the World Resources Institute (WRI), about 42 % of ESCOs faced capital financing issues, particularly SMEs (Delo, Lall and Singh, 2010)

- Limited capacity in public sector: Central, State and Urban Local Bodies (ULBs)are often unable to to identify and propose energy efficiency investments due to high administrative and transaction costs

- Government procurement regulations: The public sector plays a pivotal role in creating a market within which ESCOs can operate successfully, however there are a number of conflicting regulations and overlapping mandates and jurisdictions, which distort energy efficiency markets. Markets are characterized by: i) energy policy disincentives (e.g high costs of electricity which stimuates self-generation of inefficient diesel power), ii) limited enforcement of energy policy and lack of clear incentives (Dhingra & Julena, 2005), and iii) poor understanding of legislation which may differ across States (Urge-Vorsatz, et al., 2007)

- Perceived technology bias: The industry is presently dominated by "vendor-driven" ESCOs, which are affiliated to equipment manufacturing companies. Clients generally perceive the services offered by these ESCOs to be biased, rather than providing comprehensive energy management solutions (Kumar and Vaddy, 2013). Further, there may also be technical, safety and reliability concerns hamper the introduction of any new technology

- Weak institutional arrangements: ESCOs face entry barriers, such as accrediting mechanisms to certify ESCOs, legal redressal systems, tax, auditing and legal requirements (Karrir, 2005).

- Inadequate mointoring and validation (M&V) protocols: Energy savings is measured from a baseline set at the start of a defined EE project. Metering systems for energy monitoring have become costly, and often faulty tracking systems lead to disputes between the ESCO and the client. This results in loss of earnings for the ESCO and also creates mistrust between the parties. There are no robust M&V protocols to measure and validate energy savings of demonstration projects in a transparent manner. M&V systems need to help ESCOs demonstrate tangible energy savings.

This proposed GEF project aims to reduce some of these barriers and generate multiple benefit streams to strengthen the capacity of EESL as a model ESCO in India.

2) Baseline scenario or any associated baseline projects

Street lighting/domestic lighting

To date EESL has invested over USD 22 million in street lighting and domestic lighting with expected energy savings of 264 MWh. This is the core business of EESL, around which the company has developed a viable energy savings business model. Going forward, EESL is expected to be a key driver in achieving the targets of the GoI's national (light emitting diode) LED-based home lighting and LED-based street lighting programme, set in early 2015. The programme is estimated to cost USD 1.5 billion. EESL is gearing up to meet these targets as the entire target is EESL target. A corollary loan provided by AsDB for USD 200 million, matched with other resources will expand EESL business to address these targets. Other than this there has been little other ESCO activity in India. However, one GEF-supported initiative with the World Bank to set up a partial risk guarantee through commercial banks is expected to allow private energy service companies to access commercial funds and provide energy savings services. PRGF (Partial Risk Guarantee/Sharing Facility) is a mechanism to cover commercial risk of the loan provided by a bank / FI to ESCOs. The present project is for investment by EESL. The PRGF will provide risk cover to attract loan / debt at attractive rates. This benefit will be passed on to the municipalities, Discoms etc. The project time period is 5 years from GEF efforts and EESL investment will be 20%.The table below presents targets of the baseline AsDB projectfor EESL to replace bulbs in street lighting and domestic lighting, which will be contrasted with the expected replacements due to the regulatory regime of labelling being introduced by BEE for home lighting:

S.No	Category	Replacements due to EESL efforts	Penetration due to regulations of BEE	Remarks
1	Home LED lights	200,000,000	400,000,000	Ongoing investments of EESL
2	Street LED Lights	2,000,000		Labelling not planned for street lights

Super Efficient Ceiling Fans

After lighting, ceiling fans are the biggest source of energy consumption in households, with annual fansales expected to grow by 12% annually. The BEE is supporting a programme with manufacturers to 'produce super efficient fans', (reducing consumption from 70W to 35W) which when installed, would generate savings of between 50 and 55% in energy consumption. The savings are monetized and shared with EESLto enable commercialization of the business model . Through the proposed GEF project, EESL will help to create demand through mass procurement and installation with consumers, and provide incentives for manufacturers to scale up production of super efficient fans and promote market penetration of these technologies.

Smart Grids

Smart Grids require implementation of advanced technologies in monitoring, measurements, control, automation, communication, IT and smart metering. The Indian power grid suffers from 25% aggregate technical and

commercial (AT&C) power losses compared to a global average of 8.4%. This concerns the GoI, since it drives up consumer costs and affects the quality of power provided to Indian consumers. The GoI have set an annual target at the end of 12th plan to reduce AT&C losses by 1 to 3% annually, and to help support this target they have set up a task force to make policy and implementation recommendations. This is supplemented by a forum to openly discuss technical and other issues related to smart grids, such as preparing for a higher penetration of renewable energy in the country. The GoI is now offering 100% loans to utilities for grid upgrades in eligible urban areas through the the Ministry of Powers integrated power development Scheme (IPDS). The IPDS aims to build reliable and automated systems for sustained collection of accurate base line data, and the adoption of information technology in energy accounting along the grid back bone up to and including distribution transformers. This will in turn allow distribution companies (DISCOMs) to invest in their own advanced metering infrastructure along power feeders, giving them a range of new capabilities such as a) automated and net-metering,b) better load forecasting, c) active load control and outage management, d) theft detection, and e) revenue protection. As part of the GoI initiative to stimulate smart grid technologies, 14 pilot projects are being commissioned with interested DISCOMs around the country to test different technology configurations. So far all these pilots are in the 'start-up' phases and no experience has been recorded yet. These pilots are to be done by DISCOMs under a MOP (Ministry of Power) grant.

There is an opportunity for EESL to combine its existing business in demand side energy efficiency technology with smart grid technologies. The company has established relations with DISCOMs and is already helping them to reduce the high costs of providing peak power consumption. There are additional possibilities with smart grid technologies to shift peak power consumption and avoid theft, which can add to the energy saving business model the company specialises in. The example below explains how one smart grid performance contract has be done in West Bengal. The contract includes both financial and energy savings for the DISCOM, for example by reducing theft, inaccurate or no meter reading, better projections for power demand for financial gains, together with energy savings by reducing technical losses from feeder lines transfomers and low power factors. The combined financial savings help the DISCOM improve their financial bottom line, and position the company to invest in modernization and energy efficiency, while the energy savings help to reduce GHG emissions. EESL will closely follow the example below to make an investment in smart grids with a DISCOM and draw up and energy savings contract to recover their costs.

Example 1 – Smart grid performance contract with West Bengal State Electricity Distribution Company (WBSEDC)

An ESCO company entered into a contract with WBSEDC where the ESCO would invest INR crores 80.11 (USD 13 Million) to build, operate and maintain a smart grid for WBSEDC (including pole mounted meters, GPS, and communication equipment), resulting in estimated savings of INR crores 663 million over a 15 year period. The ESCO would recover its investments over 7 to 8 years by receiving some of these savings. Pole mounted smart meters covering 57,000 domestic, commercial and industrial clients, reduced commercial and technical losses, and supported energy accounting and load management. This includes savings from technical losses such as reduction in transformer failures, and low load factors (where meters can alert owners to technical failers and load factors can be improved), power and asset theft (again owners alerted if equipment is dismounted), load management and accurate meter reading (meters allow DISCOMS to identify changes in consumption trends and plan for them, and all meters work allowing the DISCOM to bill all clients).

The ESCO conducted a preliminary baseline estimate with existing data together with data from a real time audit of energy data, to estimate combined losses at 20.2%. From this the investor was able to calculate potential savings of 11.8% and draw up a deemed savings contract with WBSEDC, as above. Energy savingsare estimatedto be 28.4 million kWh in the first 5 years and 85.2 million kWh over 15 years.

Tri-generation

Tri-generation is the combined cooling, heat and power (CCHP) from simultaneous generation of electricity and useful heating and cooling through the combustion of a fuel or a solar heat collector. In 2010 there were only eight (8) examples of tri-generation investments in the country (all of these were installed in either Dehli or Gujarat and by Deutz MWM or Clarke Energy). With only one exception, all these investments are the industrial sector. From an energy efficiency perspective, tri-generation (94%) is more efficient than co-generation (85%), but tri-generation requires a different consumer energy consumption pattern. The trigeneration application is for those facilities that require electricity, cooling and hot water. The examples are hospitals, Airports, Hotels, Malls etc. Since 2010 there has been a further installation sponsored by BEE and GIZ in one of the government hospital Jai Prakash Narayan Apex Trauma Center (All India Institute of Medical Sciences) in New Delhi, India under the Indo-German Energy Programme. The project was funded by the German Federal Ministry of Environment, The Nature Conservation (TNC), Building and Nuclear Safety (BMUB) and jointly implemented by the BEE and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

A 2010 study by GIZ identified sites that consume power cooling and hotwater, including hotels, hospitals, commercial complexes and shopping malls, 24 hour offices, airports, and industrial applications, with access to gas networks. The study confirms a potential demand for tri-generation of between 5,000 and 13,000 MW. There are a number of barriers which will need to be addressed, including: a) relatively few tri-generation suppliers in India so a response to an EESL bid for technology may not be as competitive as with other technologies, b) installing tri-generation investments requiresdetailed engineering plans,which may affecttiming concerns of building owners with respect to business plans, c) installation requires sophisticated i.e. good & knowledgeable suppliers and increases transaction costs and unless EESL bears the full financial costs of installation (a shared savings scheme rather than guaranteed scheme), aggregation may be difficult to achieve, and d) if power sales back to the grid become an attractive part of a tri-generation business, the savings model will need to be able to net out the additional energy consumption generated from these power sales.

2) Proposed alternative scenario, GEF focal areastrategies, with a brief description of expected outcomes and components of the project

There are number of differet types of performance contracting models used by ESCOs. These include: a) shared savings,in which part of savings are shared between the ESCO and consumer, b) guaranteed savings are the savings in which 100% saving is given to ESCO company so that they can get the money for the work carried out by them, c) deemed savings, and d) energy supply/management. The “deemed savings” approach has been proven by EESL. The “deemed savings” approach features: a) an energy services agreement (ESA) between the ESCO and host facility with a fixed price for services defined, b) A Financing Agreement (FA) between the ESCO and a financial institution, c) an agreement between ESCO and government or utility under which ESCO receives payments based on deemed savings. The ESA specifies the services provided by the ESCO and a fixed payment by host facility for ESCO services. The FA specifies an ESCO equity investment, financial institution debt investment, with interest rate and term of loan. The ESCO makes loan repayments from host and utility/government payments (USAID, 2014).

EESL’sturnover increased from USD 1 million in 2012, to USD 15 million in 2014, with anticipated turnover of USD 100 million by 2016. The proposed GEF project will build on the experience that EESL has gainedin the lighting sector in terms of application of energy efficiency business models and seek to: a) scale up investments in theseestablished sectors through additional financial support from an AsDB loan, and b) demonstrate widespread success in ESCO project implementation through projects targeting municipal, commercial and domestic consumers that can be leveraged to expand EESL’s operations into ceiling fans, tri-generation and smart-grid technologies.

The GEF project will : a) leverage equity for high impact, b) be transformative, c) generate multiple benefit streams, d) have considerable potential for replication and scaling up, and e) strengthen capacity for the GOI to address obliations under the UNFCCC. The project will be built on LED model which has transformed the energy efficient lighting. The overall objective is to To reduce greenhouse gas (GHG) emissions through energy efficiency through scaling up and new technology applications. It will be organized around three interlinked components:

Component 1 will use GEF funds as equity to leverage debt and expand EESL business in existing domestic and municipal lighting programs for rapid and large scale emissions reductions. Under Component 2, GEF funds will combine technical assistance (TA) and investments to assist EESL in diversifying its business lines into three new technology areas, including "super efficient" ceiling fans, smart grids, and tri-generation and establish a business case for ESCO Component 3 will focus on TA to support replication and scaling up of all 5 technologies, with a view to leveraging additional investments. The project will be jointly implemented by ADB and UNEP, and guided by a formal agreement between the parties, while EESL will be the local executing agency.

Component 1 – Expanding and sustaining investments in existing market sectors

Expected Outcomes:Energy efficiency improved through installation of street lighting (SL) and domestic LEDs (DL)

This component will support investments in EESL core proven business of energy savings in domestic LED lighting and street lighting. AsDB will also include USD 1 million in TA together with GEF funds and a USD 200 million loan to undertake sector and market assessments, financial analysis, relevant due diligence of new projects and management of relevant procurement processes (using the appropriate ADB guidelines). The component aims to deliver rapid and large scale energy savings impacts.

A number of TA and capacity-development activities will ensure that EESL investment is 'investment ready', following which, the component will use the EESL established approach of tendering contracts to equipment suppliers to install energy savings bulbs in homes for domestic clients and energy savings street lights for municipal clients. EESL will finance costs of the installation of all equipment, and will sign deemed savings contracts with power distribution companies (DISCOMs) for peak power savings; and with suppliers to install and maintain energy savings equipment for municipal clients and households.

EESL experience suggests that contracts with suppliers that include after sales services which include maintenance and spare parts, are not optimal. As such EESL will split up the tenders into a) procurement and installation, and b) after sales service /maintenance. This will require a review of existing models, inclusive consultations with relevant stakeholders, possible organizational changes / re-structuring and capacity development for providers of after sales services and maintenance. These activities will be covered under the TA element of the component.

Before tendering equipment contract, signing and executing *deemed savings contracts* with DISCOMS, and suppliers/households, the project will need to execute some internal corporate level preparations, and sensitize suppliers and consumers on the proposed programme. In this connection, the component will finance the costs of a social marketing campaign to help consumers understand the potential benefist from EESL-supported products (street lighting and domestic lighting). Activities will be sequenced such that ADB TA will be used first to promote end-user behavior change, followed by GEF-supported campaigns which target consumers, DISCOMs, urban local bodies (ULBs) and suppliers. Both sets of campaigns will incorporate gender considerations. The profiles of CSO India will be reviewed to involve potential candidates in various aspects of the GEF funded campaign.

The proposed GEF project will review various options to establish a sustainable financing mechanism, likely in the form of a "revolving fund", or similar vehicle, which would be managed and controlled by EESL. Sources of funds for initial capitalization of the proposed fund, would be assessed and determined during project preparation. The mechanism would need to be "ring fenced", and finance a cycle of operations to which reimbursements and collections are returned for use in a manner which will maintain the principal of the fund over a long term. Under Component 1, the architecture for the fund (e.g. legal status, governance framework, standards, operational measures, auditing systems, M&E, reporting requirements etc), will be designed. Furthermore, EESL will determine the sources of initial capitalization for the fund, and confirm the formula by which the fund's resources circulate. One scenario being considered is to allocate a portion from the energy savings accrued which can be set aside to replenish the fund to continue to provide incentives to develop and invest in other projects. A percentage of annualized energy savings earned from the implementation of such projects can be accrued back to the fund. The

percentage will be determined based on respective project development cost, and expected revenues from investments. This will be built into the techno-commercial annualized savings model during the project development, and tested during implementation of Components 1 and 2. Necessarily, the project development costs will be reinstated to the revolving fund immediately after the project is up and running. Financial data from the revolving fund will be brought together in component 3, together with energy savings collected in this component 1, to support evidence based analysis and recalibration of the EESL's business model.

Under component 1, EESL's business model will be reviewed in domestic and street lighting. In particular funds will be used to design and conduct MRV protocols that may include AMS-II.J and AMS-II.L CDM methodologies, to estimate actual savings from these investments and help EESL to calibrate its own deemed savings contracts. The results of this will be fed into component 3 to support the development of a revised business plan for EESL.

The outputs of this component will be:

- Due diligence on the EESL investment conducted
- Energy savings contracts signed and executed with ULBs, DISCOMs, suppliers and consumers
- Gender sensitive social marketing campaigns scaled up to target consumers, DISCOMs, ULBs, and suppliers
- Review and recommendations of business models for each market sector conducted (SL and DL), including MRV protocols.
- Supply tenders for installation and maintenance awarded and contracts signed
- Revolving fund, or similar mechanism, designed and operationalized

Component 2 – Building market diversification

Expected Outcomes: 1) Energy efficiency improved through installation of ceiling fans, tri-generation technologies and smart-grid applications
This component aims to help EESL to diversify its business into energy savings contracting for super efficient ceiling fans, tri-generation and smart grid technologies. EESL has not yet worked with these technologies and this component will help EESL to pursue testing and proof of concept, to help make decisions about the business viability of these technologies and develop standardized approaches for working with clients. It will do so by leveraging investment to test the viability of energy savings contracts.

The investment part of this component will use USD 13 million in GEF grant funding as equity for EESL to leverage matching commercial loans of USD 26 million in super efficient ceiling fans, tri-generation technologies and smart grid applications. EESL will finance costs of the installation of all equipment, and will sign deemed or actual savings contracts with suppliers for super efficient ceiling fans and performance based contracts with suppliers for tri-generation technologies and smart-grid appliances. EESL will assume the financial risk, while the supplier will take the technical risk.

The TA part of this component will focus on the pre-investment preparation work and post-investment assessment and evaluation. It will also establish an energy savings for EESL super efficient ceiling fans, tri-generation technologies and smart grid applications. The component will also finance the cost surveys and audited samples of existing ceiling fans in India, and AT&C grid losses to calculate deemed savings and modify standard contract documents for this appliance. The component will also support review of EESL internal business processes, and support consultations with suppliers, consumers and DISCOMs on the structuring of business partnerships which would see equitable sharing of risks and benefits.

In this component, EESL will aim to use its existing business model for super efficient ceiling fans by aggregating procurement through suppliers and targeting established DISCOM partner customers. With smart grids and tri-generation EESL will need to develop an energy savings approach, including MRV protocols, such as CDM methodologies AMS-II.K and AMS-II.A, to sample actual savings and calibrate future contracts. In the tri-

generation EESL will identify one (1) investment targeting either a hospital, hotel, shopping mall, airport, IT data center or any other facility with 24X7 operations. For smart grids EESL will approach its current DISCOM partners which experience high aggregated commercial and techcnial losses, and select one sub-project, targeting a grid area of around 50,000 consumers. The remaining 8 projects (or procurement contracts with suppliers) will be for super-efficient ceiling fans.

Following these investments, it will be important to carefully monitor performance, record experiences and allow EESL to calibrate its business model for tri-generation, smart grids and super efficient ceiling fans and prepare for expansion into this sector. This component will also finance the costs of a marketing campaign for EESL new energy savings product lines. Campaigns will target suppliers, DISCOMS, ULBs, and commercial buildings. Relevant CSO'

The outputs of this component include:

- Standards and specifications for technology tenders developed
- New ESCO business models for super efficient ceiling fans, tri-generation and smart grid technologies validated
- Financial and Energy savings performance of super efficient ceiling fans, tri-generation and smart grid investments monitored, measured and reported.
- Gender sensitive social marketing campaigns conducted target consumers, DISCOMs, ULBs, and suppliers
- Investments in super efficient ceiling fans, tri-generation and smart grid across“10” projects

Component 3 – Replication and scaling-up

Expected outcome: Enabling conditions created to support EESL growth strategy targeting US$ 300 million in investments across all 5 technologies (SL, DL, CF, TG, SG)

The future growth path for EESL will be, among other things, based on expansion of services in street and domestic lighting markets, and diversification into new energy market segments. This component aims to support a stock take of EESL’s current experience and incorporate lessons learned and best practices into its future business plans. This will include comparative review of different ESCO and energy savings models, financial and energy savings data collected under components 1 and 2; a review of other technologies that EESL could expand into, in the medium to long term. The component will also support a review of option to automate EESL services. Automation process will faciliatate information flow, communications and transactions between EESL, its clients and third parties and strengthen monitoring capacity for deemed savings, and other contracts.

The BEE plans to establish units in major cities (ULBs) around the country, which will likely be linked to EESL’s regional operations. One of the aims of this component will be to work with DISCOMs and ULBs to build on the marketing campaigns and help them prepare their own energy savings plans. Existing DISCOM’s and Municipalities are already beginning to see the benefits of energy savings. EESL and ESCO models are likely to be an important part of these growth plans with the financial backing to bring about these savings. These energy savings plans will in turn give EESL greater visibility on forward planning for new business opportunities and growth.

Based on the above, work in this component will also support the development of a replication and scaling up strategy in each of the five market segments that are under the proposed GEF project. Commercial scaling up includes functional, spatial and temporal elements. This work will address barriers and constraints to adoption of these EE technologies (building on work in the previous two Components) and support pre-feasibility, assessment and validation of a number of potential pipeline investment projects, with potential financing requirements and sources of finance identified.

The outputs of this component will be:

- Growth strategy drafted, based on collected experience, lessons, data from components 1 & 2, on energy and financial savings and a review of other technologies EESL could expand into in the medium to long term.
- Business processes automated at EESL.
- Energy savings plans and capacity-building for ULBs, DISCOMs, facilities owners and managers for implementation of energy savings plans conducted
- Investment opportunities with potential sources of finance identified /screened

4) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;

The project will build on EESL's energy savings model examples are utility rebate programmes, on bill financing, supplier credit etc. The company has an established business in domestic lighting and street lighting and it has grown its business and experience in these areas. In these sectors, the project will leverage additional resources over a 100 times greater than the GEF investment, to expand its impact in its existing business lines of domestic lighting and street lighting, to provide fast and large scale impact through energy savings.

The proposal will also support EESL to expand its business into super efficient ceiling fans in the domestic sector tri-generation and smart grid technologies. There are a number of areas from technology options, business models supplier relations that need to be developed. The GEF will finance the incremental costs of technical assistance in developing and refining EESL's business in these areas, and provide USD 14.34 million in equity to leverage USD 26 million from KfW as debt to invest in smart grid and tri-generation technologies to test business approaches. The project will take EESL into new energy efficient and high impact business ventures, it would not otherwise enter into without the risk capital.

The project will be jointly implemented by UNEP and ADB. ADB will lead on all investments in components 1, 2 and 3. ADB will bring together the GEF grant and their own loan to EESL for investment and apply their due diligence process. They will also support EESL in component 3 in generating a new pipeline of investments under EESL's new business plan. UNEP will be the lead agency of the project, and will implement the technical assistance parts of component 1, 2 and 3. UNEP will bring its regional and global experience and lessons in testing new business models and new technologies to the project.

5) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and

Indicative calculations show that from total project costs of $ 455 million including GEF funding and co-financing the project will generate 8.53 million Mtco2 in direct emissions reductions, giving a cost efficiency ratio of $ 2.2 GEF per tCO2.

Street lighting/domestic lighting/ceiling fans

The project will be able to make savings estimates of 8.45 million MtCO2 eq, from investments in domestic LED, Municipal street lighting, super efficient ceiling fans. These savings estimates are based on the costs of equipment from EESL and IPEEC (ceiling fans), and unit savings estimates from EESL calculations.

Smart Grids

The estimate for GHG emission reduction is 61,284 MtCO2. The calculations are based on the assumption that the activities and investment of this project will reduce technical and commercial losses in India. The calculations are based on the energy savings coming from West Bengal State Electricity Distribution Company (WBSEDC) case study described above. The project lifetime assumed for the investment is 15 years.

Tri-generation

The estimate for GHG emission reduction is 12,418 MtCO2. The calculations are based on the case study at the government hospital Jai Prakash Narayan Apex Trauma Center.The project lifetime assumed for the investment is 20 years.

6) Innovation, sustainability and potential for scaling up.

As indicated above, the project features an innovative mix of technical assistance and investment grant for demonstration. Some funding may also be used as equity (to be confirmed during further preparation), which will leverage high impact as more co-financing could be leveraged, particularly because of the significant co-financing attached to the baseline projects. It will be transformative in the sense that it seeks to address key issues in energy demand management, which will be accompanied by parallel changes in consumer behavior over the long term. Multiple benefit streams will be stimulated, which include real GHG emissions reductions, increase in ESCO operational effectiveness to support energy markets, enhanced awareness of energy efficiency at various levels in the energy value chain, and create the enabling conditions for high impact scaling up.

LEDs are viewed as a "game-changing technology". The shift to LEDs is compared to the shift from candles to incandescent bulbs – and offer a) energy savings of 50-70% compared with other technologies, superior control over colour, intensity and direction, c) lifespan of 50,000 to 100,000 hours above other technologies, which can be extended further using smart controls (The Climate Group, 2012). Work under Component 1, linked to the AsDB loan project, will help put India on a low carbon path, with local governments taking the lead as early adopters. Central, State and ULBs can develop economic policy instruments to assist the owners of lighting assets to overcome any barriers to scaling up. Furthermore, re-consideration and development of new lighting standards which incorporate the beneficial elements of LED technologies can form one element of a much broader "Smart Cities" initative.

The project will strengthen EESL capabilities to invest in its core business and expand / diversify business lines into three new market segments. With a strong financial position, business models and organisation, EESL is likely to become a primary driver for energy efficiency investments in India. All profits generated by EESL after loan repayments will be re-invested in their energy savings business.Applying an ESCO model to tri-generation and smart grid technologies requires innovative and risk. This is why EESL is only prepared to explore these new sectors if itsfinancial risk is contained. However the potential savings from tri-generation and smart grid technology is significant. The Indian power grid has around 25% technical and commercial losses with a potential for reduction down to around 8%. For tri-generation the market size is between 5,000 and 13,000MW with a savings potential of 55%.

2. Stakeholders. Will project design include the participation of relevant stakeholders from civil society and indigenous people? (yes ☒ /no☐) If yes, identify key stakeholders and briefly describe how they will be engaged in project design/preparation.

During project preparation a detailed stakeholder involvement plan will be developed, based on the initial presentation below:

Members	Ministry of Environment, Forest and Climate Change (MoEFCC)	The Ministry will play an advisory role and provide expert advice on aspects related to climate change mitigation. The Minsitry is also GEF OPF India and will be part of the Project Steering Committee
	Ministry of Power	The Ministry will play an advisory role and provide expert advice on aspects related to policy formulation and legal / regulatory measures

	Ministry of Petroleum and Natural Gas	The Ministry will play an advisory role and provide expert advice on aspects related to project regulatory measures.
	Bureau of Energy Efficiency (BEE)	BEE will be the guiding agency in the project, and provide inputs on regulatory implications.
	Energy Efficiency Services Limited (EESL)	EESL will be the national executing agency, and host a project management unit (PMU).The PMU will adhere to the regulations of the UN/GEF as a general rule for executing the project.
	Urban Local Bodies (ULB)	Local Bodies shall be partners in execution of the energy efficiency upgrade projects for LED street lighting projects, and also benefit from awareness creation and social marketing actions.
Other Stakeholders	Electricity Distribution Companies	Electricity Distribution Companies shall be partners in execution of the smart grid Projects.
	Other stakeholders	These will include national experts, vendors, suppliers, local banks and financing institutions who will be participants in the training programmes and capacity building workshops
	Civil Society Organisations (CSO's)	Relevant CSO's will identified, and involved in design, implementation and analysis of marketing of energy efficiency campaigns.
	State Regulatory Commissions	The regulatory commissions of the respective distribution companies shall provide the enabling regulatory framework for large scale transformation in distribution

3. Gender Considerations. Are gender considerations taken into account? (yes ☒ /no☐). If yes, briefly describe how gender considerations will be mainstreamed into project preparation, taken into account the differences, needs, roles and priorities of men and women.

The proposed GEF project will promote effective gender mainstreaming (EGM). During the inception phase, a Gender Action Plan will be developed to guide project implementation. This will include development of appropriate energy sector outcome and results indicators based on the ADB gender equality toolkit. The energy sector has been among the main priorities for the ADB–India partnership. Between 1986 and 2010, it accounted for US $7.3 billion, or 28.5% of Asian Development Bank (AsDB) assistance to India. A number of new directions have increased the scope to support gender equality in energy investments through, initiatives that address the particular energy needs of women at the household level and further steps to encourage women's participation as energy entrepreneurs and service providers. The proposed GEF project may contribute to adaptation and support for a proposed women-led 'energy clinics' program based on a successful case in Kerala (linked to the AsDB loan project).

In the context of the proposed GEF project, the marketing campaign will customize actions that target women and men separately. Suppliers will be trained to differentiate their approach between men and women, recognizing the fact that women are the primary energy managers in households. Gender equality principles will be applied during project implementation, particularly in procurement processes, training and capacity development. Policy dialogue will also foster equality in decision making at Central, State and ULB levels, in alignment with various relevant GOI policy commitments.

The AsDB TA (under Component 1) will address communication and education approaches that can maximize adoption of LED lights provided through the program and broader energy efficiency benefits to households through behavior change communication. These will be designed in a gender-sensitive manner and incorporated into the implementation approaches for all LED home lighting projects.

*4Risks.*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).

A more detailed risk mitigation plan will be developed during project preparation phase.

Risk	**Rating**	**Mitigation measure**
Political risk: Changes in government priorities resulting in reduced support for the project, delays in activities and overall ineffectiveness of the interventions.	Low	The project seeks to transform the market for deployment of LED lighting in homes and street lights. This energy efficiency upgrade through DSM and an ESCO approach is considered a high priority of the Government as spelled out in the Action Plan on Energy Efficiency from the Bureau of Energy Efficiency. The project will also use the lessons learned from LED programs for expansion in other technologies in the domestic sector. The project will also extend and test this model for the deployment of tri-generation and smart grid technologies. These programs and planned expansion to include other appliances are part of the GoI priorities and therefore unlikely to change as the Government has already facilitated the segment through enactment of Electricity Act, 2003 and Energy Conservation Act 2001.
Technical risk: Lack of energy savings from deployment of efficient technologies	Low to Medium	The LED lighting technologies are well established and proven in Indian conditions through existing EESL projects. Super efficient ceiling fans is an additional technology for EESL. EESLwill require a new deemed savings calculation for ceiling fans, however it will use the same business model that EESL has been using in its street lighting and domestic lighting work and will be marketed to the same domestic consumers who have received LED's. In all, the departure from EESL's existing business is small and therefore the risk is considered as low. Both smart grids and tri-generation have potential for large savings, but are new technologies for EESL. The project will finance investmentin smart grids and tri-generation to identify and address the technology risk as part of the project learning. The risk is medium.
Sustainability risk: The risks envisaged here include inability to scale up implementation and lack of financing beyond the project period.	Low	EESL has committed financial resources to ensure that replication occurs beyond the project's implementation period. The revolving fund to be established will also ensure that the best practices of project design and implementation are replicatedbeyond the project covered in the initial project cycle. Lessons learned on in the domestic and street lighting sector programs will also inform future programs for expansion into other sectors.
Financial risk: The risk of non-payment for investments made by EESL	Medium	UNEP, AsDB and EESL will provide training to various stakeholders on the long-term financial benefits of investing in energy efficiency.

Climate change risk: The project is not subject to any climate change risks.	Nil	While there is no direct climate change risk to the implementation of the proposed project foreseen, the project's activities will, via its interventions, help to mitigate climate change risks for the direct beneficiaries of the project. For instance, the increased use of energy efficient technologies will reduce electricity consumption, thus reducing energy costs and negative impact on the environment. There may well be opportunities to build "climate proofing" elements to installed energy infrastructure.
Other environmental risks: These include the waste stream generated from replacement of light bulbs (incandescent and CFLs) under EESL programs. Furthermore, as EESL programs expand to reach 240 target cities, contracted suppliers will need to adhere to cleaner production guidelines in order to avoid offsetting gains made from the GEF and loan projects.		The proposed GEF project and AsDB loan and other investments will be guided by the AsDB Safeguard Policy (2009), and EESL tendering / procurement policy and practice with appropriate measures built-in during project preparation

*5. Coordination.*Outline the coordination with other relevant GEF-financed and other initiatives.

Links with the ADB loan project:

ADB and EESL are in the process of finalizing a US $200 million loan on "Demand Side Energy Efficiency Investment", which, inter alia, will support more efficient municipal lighting through use of light-emitting diode (LED) street lighting equipped with remote operating technology, and (ii) more efficient domestic lighting through replacement of incandescent lights with LEDs (ADB, 2015). EESL is the intended borrower and will also serve as the executing agency and will implement all subprojects under the proposed ADB loan.The GEF investments under Component 1 will be directly linked to the ADB loan project, with investments under Component 2, indirectly linked. The ADB loan project will contribute to the overall business operations of EESL.

The impact of the ADB baseline loan project would be improved demand-side energy efficiency in India. At the outcome level, there would be increased end-use efficiency in the selected project areas. This would be achieved through the following outputs: (i) enhanced street lighting efficiency in select municipalities, (ii) enhanced domestic lighting efficiency in select utility service areas, (iii) improved agricultural demand-side management (DSM) in select utility service areas, and (iv) enhanced institutional capacity of EESL. While the local project provisionally intends to work in Andra Pradesh, Karnataka, Kerela and West Bengal, locations of additional projects will be identified during project processing. End-user awareness programs will be conducted to increase awareness and maximize gains. In addition, a proposed women-led 'energy clinics' program successfully implemented in Kerala will be adapted to the relevant project activities.

Links with the KfW loan project:

KFW and EESL are in the process of finalizing a US $31.2 million loan (Equivalent to 26 Million Euro) on "Demand Side Energy Efficiency Investment" on new Technologies, which, inter alia, will support super efficient fans through use of DC motor equipped with remote operating technology, (ii) Tri-generation (Electricity, Cooling & Heating) and, (iii) Smart Grids through Smart meters. EESL is the borrower and will also serve as the executing agency and will implement all sub-projects under the proposed loan. The KFW loan project will contribute to the overall business operations of EESL.

The impact of the KFW loan on the project would be improved demand-side energy efficiency in India. At the outcome level, there would be increased end-use efficiency in the selected project areas. This would be achieved through the following outputs: (i) Usage of Super Efficient fans in select DISCOMS, (ii) Tri-generation in select utility service areas of Commercial sector, (iii) Smart Grids through smart meters for Loss reduction, demand Response i.e. Demand-side management (DSM) in select DISCOMs, and (iv) enhancing the institutional capacity of EESL. While the local project provisionally intends to work in Delhi, Andhra Pradesh, Karnataka, Kerela, West Bengal etc., locations of additional projects will be identified during project processing. End-user awareness programs will be conducted to increase awareness and maximize gains.

Links and coordination with the National Mission for Enhanced Energy Efficiency - This proposed project needs to link and coordinate its activities to with the National Mission for Enhanced Energy Efficiency (NMEEE): This Mission focuses on enhancing energy efficiency measures in the country through four initiatives. These initiatives are: a market-based mechanism to enhance cost-effectiveness of energy efficiency improvements in energy-intensive large industries through the certification of energy savings that could be traded (perform, achieve, and trade), accelerating the shift towards energy-efficient appliances in identified sectors (market transformation), creating a financing mechanism for facilitating demand side management (DSM) programmes (energy efficiency financing platform), and developing fiscal instruments that promote energy efficiency (framework for energy efficient economic development). The Mission seeks to enhance efforts to unlock the energy efficiency market on a purchasing power parity basis to result in a total avoided capacity addition of 19,598 MW by 2017.

There are three on-going GEF CC projects which this proposed project may have relevant links and should be explored. These are the following:

- "Facility for Low Carbon Technology Deployment", (GEF IA - World Bank, GEF EA -Bureau of Energy Efficiency, GEF funding – US$9,000,000). Project Objective: To develop a network of research and innovation institutions in India that can address technology gaps to mitigate climate change and improve the economy's energy efficiency.
- "Market Transformation and Removal of Barriers for Effective Implementation of the State Level Climate Change Action Plans" (GEF IA- UNDP, GEF EA- Ministry of Environment and Forests, GEF funding US$3,894,438) Project Objective: To support the effective implementation of specific energy efficiency and renewable energy related climate change mitigation actions identified in the State Level Action Plans on Climate Change for selected states in India
- Promoting Market Transformation for Energy Efficiency in Micro, Small & Medium Enterprises. The proposed project will aim to divert industry from the business as usual track by strengthening the market "push" and "pull" forces that contribute to industrial energy efficiency, while the model of capacity building and technology adoption will ensure that the project has sustainable benefits beyond the project term. EESL is the executing agent of this UNIDO project, as they are for this proposed GEF project. Therefore coordination will be managed by EESL between these two projects to allow for synergy and complementarity.
- Partial Risk Sharing Facility for Energy Efficiency for USD 18 million implemented by the World Bank. The aim of the project is to remove the barrier for private sector ESCO's to raise capital to make energy efficiency investments. This has been seen as major constraint for the growth of ESCO's in India.
- Establishing the Foundations of a Partnership to Accelerate the Global Market Transformation for Efficient Appliances and Equipment implemented by UNEP. The aim of the project is to mitigate climate change by reducing the growth of global electricity consumption through the creation of a global partnership accelerating markets for highly efficient electrical appliances and equipment. This project just recently endorsed will produce best practice policy, awareness raising, and financial mechanism tool kits to facilitate the transition to efficient and advanced lighting (light emitting diodes) in the commercial, industrial and outdoor lighting applications. These guidance material can be used to support this project.

The Project Steering Committee (PSC) will be established to monitor and guide project activities, and will be composed of representatives of EESL, MoUD, MoEF, UNEP, ADB & BEE. The PSC composition and terms of reference will be considered during project preparation.

*6. Consistency with National Priorities.*Is the project consistent with the National strategies and plans or reports and assessements under relevant conventions? (yes ☒ /no☐). If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.

This proposed GEF project is consistent with the following national strategies and plans:

National Action Plan on Climate Change: On June 30, 2008, India's first National Action Plan on Climate Change (NAPCC) outlining existing and future policies and programs addressing climate mitigation and adaptation was released. The plan identifies eight core "national missions" running through 2017 and directs ministries to submit detailed implementation plans to the Prime Minister's Council on Climate Change by December 2008. Emphasizing the overriding priority of maintaining high economic growth rates to raise living standards, the plan "identifies measures that promote our development objectives while also yielding co-benefits for addressing climate change effectively." It says these national measures would be more successful with assistance from developed countries, and pledges that India's per capita greenhouse gas emissions "will at no point exceed that of developed countries even as we pursue our development objectives."

India's Twelfth Five-year Plan (2012–17): The most significant and monitorable target of India's 12th five-year plan an Average GDP growth of 8%. This requires a growth of about 6% in energy supply from all sources as India's import dependence is already high. Hence there is an urgent need to push Energy Efficiency in all sectors.

Power for All - A joint initiative of GOI and Government of Andhra Pradesh: The Power for All Programme, covers the entire gamut of Power Sector, including Generation, Transmission, Distribution, Renewables, Energy Conservation and Customer Initiatives. The State Government is promoting Energy Conservation and Efficiency Measures in a big way. It is proposed to implement Demand Side Management (DSM) initiatives in domestic household lighting, municipal street lights and agriculture pump-sets in collaboration with EESL, a public sector body with no upfront investment from the Government / Municipalities / Discoms / Consumers / Farmers.

To develop a road map for Smart Grids in India, the Government has set up India's Smart Grid Task Force (ISGTF) as an Inter-Ministerial group to serve as Government's focal point for activities related to Smart Grid and to evolve a road map for Smart Grids in India. The ISGTF has taken up measures to ensure that open source technologies and protocols related to smart meters and communication are standardized.

Accelerating adoption of energy efficiency through Demand Side Management in buildings is a major thrust area of the Government of India. The policy on smart city launched by the Government earmarks energy efficiency as one of the feature of the smart cities. As such tri-generation project compliments the national needs.

7.Knowledge Management. Outline the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.

Component 3 on replication and scaling up will synthesize experience from EESL's business in the municipal and domestic sectors, and on the testing of the new technologies (super efficient ceiling fans, smart grids and tri-generation) and summarize the new business models and prepare an analysis of options for EESL's growth strategy. In addition, the company's market campaign will include an upgrade of the website to provide better data to consumers, policy makers and researchers. Sharing of best practices, constraints witnesses, techo-financial models and verification protocols shall be documented and shared among stakeholders for mass dissemination.Opportunities for cross learning will be encouraged. Knowledge management approaches will be detailed during project preparation.

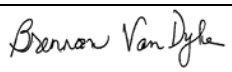
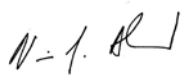
PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT[8] 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 SGP OFP endorsement letter).

NAME	POSITION	MINISTRY	DATE*(MM/dd/yyyy)*
Mr. Susheel Kumar, Operational Focal Point	Additional Secretary	Ministry of Environment, Forests and Climate Change, Government of India Tel:+91 011 24695242 Fax:+91 011 24695260 Email:asmef.susheel@gov.in	07/30/2015

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies[9] and procedures and meets the GEF criteria for project identification and preparation under GEF-6.

Agency Coordinator, Agency name	Signature	Date *(MM/dd/yyyy)*	Project Contact Person	Telephone	Email
Brennan Van Dyke, UNEP-GEF Coordinator		August 10, 2015	Geordie Colville, Programme Officer, UNEP	+254207623257	geordie.colville@unep.org
Nessim Ahmad, Deputy Director General, Chief Compliance Officer and GEF Executive Coordinator, AsDB		08/10/2015	Ms Shannon Cowlin, Energy Specialist, South Asia Regional Department, AsDB	+91112419 4240	scowlin@adb.org

C. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION (APPLICABLE ONLY TO NEWLY ACCREDITED GEF PROJECT AGENCIES)

For newly accredited GEF Project Agencies, please download and fill up the required **GEF Project Agency Certification of Ceiling Information Template** to be attached as an annex to the PIF.

[8] For regional and/or global projects in which participating countries are identified, OFP endorsement letters from these countries are required even though there may not be a STAR allocation associated with the project.

[9] GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF