GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Naoko Ishii
CEO and Chairperson

September 21, 2016

Dear Council Member:

The World Bank as the Implementing Agency for the project entitled: ***India: Program to Establish Pilots for Access through Renewable Energy***, has submitted the attached proposed project document for CEO endorsement prior to final Agency approval of the project document in accordance with the World Bank procedures.

The Secretariat has reviewed the project document. It is consistent with the project concept approved by the Council in June 2013 and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by the World Bank satisfactorily details how Council's comments and those of the STAP have been addressed.

We have today posted the proposed project document on the GEF website at www.TheGEF.org for your information. We would welcome any comments you may wish to provide by October 20, 2016 before I endorse the project. You may send your comments to gcoordination@TheGEF.org .

If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

for Naoko Ishii

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

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WORLD BANK APPRAISAL STAGE: GEF DATA SHEET

PROJECT TYPE: FSP Endorsement
TYPE OF TRUST FUND:GEF Trust Fund

For more information about GEF, visit TheGEF.org

PROJECT INFORMATION

Project Title: Program to Establish Pilots for Access through Renewable Energy			
Country(ies):	India	GEF Project ID:[1]	5364
GEF Agency(ies):	WB (select) (select)	GEF Agency Project ID:	P144678
Other Executing Partner(s):	Uttar Pradesh New Energy Development Agency (UPNEDA) and Ministry of New and Renewable Energy Agency (MNRE)	Submission Date:	2016-09-08
GEF Focal Area (s):	Climate Change	Project Duration(Months)	66
Name of Parent Program (if applicable): ➢ For SFM/REDD+ ☐		Agency Fee ($):	1,155,960

A. FOCAL AREA STRATEGY FRAMEWORK[2]

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount ($)	Cofinancing ($)
CCM-3 (select)	Investment in renewable energy technologies increased	Renewable energy capacity installed	GEF TF	12,844,000	28,100,000
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
		Total project costs		12,844,000	28,100,000

B. PROJECT FRAMEWORK

Project Objective: To demonstrate decentralized renewable energy based PPP models for improving energy access in state of Uttar Pradesh

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Grant Amount ($)	Confirmed Cofinancing ($)
Investment in solar mini-grids to provide access to electricity	Inv	- People provided with increased access to electricity under the project - Number of project beneficiaries from productive uses	- Generation capacity of solar mini-grids constructed under the project - Private capital mobilized under PPP arrangements for solar mini-grids	GEF TF	11,500,000	26,800,000

[1] Project ID number will be assigned by GEFSEC.
[2] Refer to the Focal Area/LDCF/SCCF Results Framework when completing Table A.

Technical Assistance	TA	- Solar mini-grids constructed and operated in inclusive and sustainble manners - Technical and institutional capacity of state nodal agency strengthend - Lessons obtained through impact evaluation studies and applied further for future project designs	- Independent verification consultant (IVC) and communication strategy consultant hired - Linkage with Livelihood established - Capacity Building and Institutional Strengthening (CBIS) of state nodal agency implemented - Impact evaluation study conducted	GEF TF	1,100,000	1,300,000
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
			Subtotal		12,600,000	28,100,000
			Project management Cost (PMC)[3]	GEF TF	244,000	
			Total project costs		12844000	28100000

C. SOURCES OF CONFIRMED COFINANCING FOR THE PROJECT BY SOURCE AND BY NAME ($)

Please include letters confirming cofinancing for the project with this form

Sources of Co-financing	Name of Co-financier (source)	Type of Cofinancing	Cofinancing Amount ($)
National Government	Ministry of New and Renewable Energy(MNRE)	Grant	12,800,000
Private Sector	Foreign Private Commercial Sources	Hard-loan	15,300,000
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
Total Co-financing			28,100,000

D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY[1]

Type of Trust Fund	Focal Area	Country Name/ Global	(in $)		
			Grant	Agency Fee	Total

[3] PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below.

			Amount (a)	(b)[2]	c=a+b
GEF TF	Climate Change	India	12,844,000	1,155,960	13,999,960
(select)	(select)				0
(select)	(select)				0
(select)	(select)				0
(select)	(select)				0
(select)	(select)				0
(select)	(select)				0
(select)	(select)				0
(select)	(select)				0
(select)	(select)				0
Total Grant Resources			12,844,000	1,155,960	13,999,960

[1] In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

[2] Indicate fees related to this project.

E. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? No

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

ANNEX A: PROJECT PREPARATION GRANT (PPG) REPORTING[4]

A. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES FINANCING STATUS IN THE TABLE BELOW:

PPG Grant Approved at PIF:			
Project Preparation Activities Implemented	***GEF/LDCF/SCCF/NPIF Amount ($)***		
	Budgeted Amount	***Amount Spent Todate***	***Amount Committed***
Total	0	0	0

ANNEX B: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used**)**

[4] If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue 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; and report to Trustee on the closing of PPG in the quarterly report to Trustee.

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

PROJECT INFORMATION DOCUMENT (PID)

APPRAISAL STAGE

Report No.: PIDA27826

Project Name	Prepare: Program to Establish Pilots for Access through Renewable Energy (P144678)
Region	SOUTH ASIA
Country	India
Sector(s)	Other Renewable Energy (100%)
Theme(s)	Rural services and infrastructure (100%)
Lending Instrument	Specific Investment Loan
Project ID	P144678
Borrower(s)	Department of Economic Affairs
Implementing Agency	Ministry of New and Renewable Energy, UPNEDA
Environmental Category	B-Partial Assessment
Date PID Prepared/Updated	27-Jun-2016
Estimated Date of Board Approval	15-Sep-2017
Appraisal Review Decision (from Decision Note)	
Other Decision	

I. Project Context

Country Context

1. India's dynamic economic structure and transformational demographic changes have made the role of electricity critical. Over the last decade India has experienced average growth rates of about 7.6 percent placing it among the top five fastest growing nations in the world. This growth has been accompanied by a reduction in poverty rate at an annual rate of 2.2 percentage points during 2005-2012 compared to 1.7 percent during 1995-2005. Today, two thirds of India's population is above the poverty line. India is also becoming increasingly urban - the 2011 census shows a population density of 382 people per sq. km and an urbanization rate of 31.2% in 2011, compared to only 28.6% in 2001. The urbanization rate is expected to exceed 40% by 2030. In response to these trends, the power sector has now emerged as the fifth largest in the world in terms of generation capacity and the fourth largest in terms of total power consumption. The demand for power is only going to rise to support the growing manufacturing sector, to meet the rising aspirations of its people, to provide electricity to and to meet the suppressed demand (now managed by load sheds and unreliable supply).

2. India's power sector faces a number of challenges. Of particular relevance for this proposed project are: a large electricity access deficit and low energy security. First, India has the largest energy access deficit of any single country, compounded by unreliable supply and low consumption.

According to International Energy Agency, World Energy Outlook 2015 report, India has 237 million people that has no access to electricity. About 93 percent of India's un-electrified population comprising live in rural areas. More than two-thirds of un-electrified households belong to the lowest 40 percent of the income ladder and are largely concentrated in five states - Uttar Pradesh, Uttar Pradesh, West Bengal, Rajasthan, and Orissa (NSS, 2010). Even those who do have electricity particularly in rural areas, face intermittent power supply. Further, India has among the lowest annual consumption in the world at 1010 kWh in FY 15, about one third of the world average.

3. Second, India faces energy security and environmental concerns regarding its generation structure, because thermal fuels 85 percent of energy generated in FY16. The power sector accounts for about one half of the total CO2 emissions in the country. Indeed, according to a World Bank study (2007), even under the lowest emissions scenario until 2031, electricity was still the highest contributor to carbon emissions growth and coal based plants would still dominate India's energy mix. The primacy of thermal fuels also means that the sector is very vulnerable to endemic coal shortages and price fluctuations.

4. Sustainable Energy for All, launched by UN Secretary General in September 2011, has generated an international momentum and has rallied the Governments, private sector, and NGOs. The global SE4ALL universal access goal cannot be met without major progress in India, as it constitutes a fourth of the total access deficit of 1.2 billion in the world today. The proposed project, with its focus on expansion of access through renewable sources, is intertwined with the first two goals of the Sustainable Energy for All initiative - achieve universal access to energy and double the share of renewables in global energy mix.

Sectoral and institutional Context

5. In 2004, Government of India (GoI) announced a goal of universal access within the next five years, following from the landmark Electricity Act 2003 and the National Electricity Policy (NEP). During this time, the definition of village electrification also underwent a change which raised the number of un-electrified villages. Until 1997, a village was deemed electrified if electricity was being used within the village's revenue area for any purpose. Between 1997 and 2004, the definition changed to the use of electricity in the inhabited locality within the village's revenue area for any purpose. After 2004, at least 10 percent household electrification and electrification of public places was defined as village electrification.

6. India is also conscious of the need for a balance between its developmental needs, energy security, and environmental sustainability. GoI wants a growing share of the country's electricity generation to come from renewable energy. In its Nationally Determined Contribution (NDC), approved by the Union Cabinet, India announced at the Conference of Parties (COP) 21 in Paris that it aims to increase to 40 percent the share of installed electric power capacity from non-fossil-fuel-based energy resources by 2030. This includes plans to quadruple the country's (non-hydropower) renewable energy capacity to 175,000MW by 2022.

7. A significant part of India's NDC will be delivered through the enhanced ambitions of the updated Jawaharlal Nehru National Solar Mission (JNNSM). In June 2015, the Cabinet approved a revision of cumulative targets under JNNSM from 20,000MW to 100,000MW. The change was based on two factors: first, the rapid increase of installed solar capacity from 18MW to nearly 4,000MW between 2010 and 2015, which created confidence that India could exceed the original target of 20,000MW; and second, the decline in costs of solar energy by over 60 percent over the same period.

8. To achieve its vision of Universal Access India has adopt a two pronged approach, focusing

on both grid and off-grid solutions to achieve its vision of universal access. The progress towards achieving this goal gained momentum with the launch of the flagship Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) in 2005, consolidating all ongoing rural electrification programs at the time. The Government has also promoted Decentralized Distributed Generation (DDG) in 2009 under the auspices of RGGVY to provide substantial capital subsidy (around 90%) and operating incentives to villages without grid electrification for distributed generation initiatives. This was aimed at areas there the grid extension was not possible in the foreseeable future. The Rural Electrification Policy of 2006 set the guidelines, definitions, and institutional structure of RGGVY program. In December 2014, GoI launched the Deendayal Upadhaya Gram Jyoti Yojana (DDUGJY) which subsumes the RGGVY scheme and allocates US$145million for the DDG schemes.

9. Complementing the DDG component of DDUGJY is the Remote Village Electrification (RVE) program implemented by the MNRE. This program, with support from the state nodal agencies, provides financial support for electrification of those remote un-electrified census villages and un-electrified hamlets of electrified census villages where grid-extension is either not feasible or not cost effective and is not covered under DDUGJY. Such villages are provided basic facilities for lighting through various renewable energy sources such as solar energy (photovoltaic), small hydro power, biomass, wind energy, hybrid systems, etc.

10. The grid and DDG (or off-grid) components of DDUJY have proceeded at a differential pace. Significant progress has been delivered in grid extension and thus village electrification. As on June 2016, 98.3% of the villages have been electrified. However, the DDG (or off-grid) component was not as successful - about 4604 projects were sanctioned, out of which only 474 projects have been commissioned as on May 30, 2016. The sustainability of energy facilities financed through MNRE has also been a challenge since they are owned, operated and maintained by the state nodal agencies (SNAs). In addition the potential for scale up has not been tested.

11. Thus, off-grid electrification in India is still in a nascent stage and has been unable to scale up to achieve the desired outcomes despite Government policies and funding mandates. The key barriers to the scale-up include: a) Isolated small pilots and business models; b) Lack of regulatory clarity on key aspects of licensing requirements, tariff, and exit policy; c) Prescriptive technical designs; d) Challenges towards ensuring sustainability, and e) Lack of transparency and high transaction costs in subsidy disbursement.

12. Addressing the above challenges and promoting DDG has gained more significance in the recent past. As mentioned earlier significant progress has been made in extending the grid to the rural areas under DDUGJY, however a large number of households still have no access to electricity. Due to poor and unreliable quality of supply of electricity the households take a conscious decision not to connect to the grid and pay the fixed charge for electricity. Secondly, even the electrified villages receive limited electricity in the peak hours (6 pm to 11 pm) and suffer from frequent long duration interruptions in the off peak hours. Therefore DDG is being increasingly viewed as a solution not only to increase but also to augment electricity provided by the grid. This would help boost the rural economy by meeting energy needs of residential and commercial activities thereby supporting enterprise development and raising household incomes. MNRE is in the process of finalizing a National Policy on RE based Mini/ Micro Grids. The objective of the policy is to promote the deployment of micro and mini grids powered by renewable energy in unserved and underserved parts of the country. MNRE targets to achieve deployment of at least 10,000 renewable energy based micro and mini grids projects across the country with.

13. The proposed project (PrEPARE) aims to address these challenges and demonstrate

scalable pilots and business models for increasing rural energy access. It is the first attempt to partner with the State Government on an operational engagement in the off-grid space of such a substantial scale. It is designed with the keeping the local context in mind, including socio-economic, energy resource, and structured with a sustainable and robust viability gap funding model that would adequately meet operational, maintenance, and management costs.

14. At the same time, the project is aligned with the appropriate national institutions and policies. The pilot dovetails into the national program under two national schemes of Deendayal Upadhaya Gram Jyoti Yojana (DDUGJY) and National Solar Mission (NSM), which subsume relevant policies on rural electrification and solar based generation relevant for the project.

II. Project Development Objective(s)

To demonstrate decentralized renewable energy based PPP models for improving energy access in state of Uttar Pradesh.

III. Project Description

Component Name

Investment in solar mini grids to provide access to electricity - *Total cost: US$38.3 million, of which US$11.5 million financed by GEF*

Comments

This component will include financing the Viability Gap Fund (VGF) that would be needed by the private developers to set up solar mini-grid infrastructure. This component will be implemented under a PPP mode wherein a private developer would be selected to construct, operate and maintain the solar mini-grids. State nodal agency UPNEDA will be the implementation agency and would run the bidding process for selecting the private player. The VGF quoted by the successful bidder will be funded by GEF and counterpart funds by MNRE in ratio of 50:50.

The proposed project aims to demonstrate scalable pilots and business models for increasing rural energy access. It is the first attempt to partner with the State Government on an operational engagement in the off-grid space of such a substantial scale. It is designed with the keeping the local context in mind, including socio-economic, energy resource, and structured with a sustainable and robust viability gap funding model that would adequately meet operational, maintenance, and management costs. One of the objectives of this funding is that the learnings from this project will feed into the Centre / state policy and inform the design of sustainable and economically viable future projects while meeting the domestic energy requirements. A GHG analysis has also been undertaken using GEF methodology. The analysis yields a greenhouse gas emission reductions totaling 435,096 tonnes of CO2 equivalent will be achieved as a direct result of the project investments.

Component Name

Technical Assistance - *Total cost: US$ 2.644 million, of which US$1.344 million funded by GEF*

Comments

a) *Independent Verification Consultant (IVC):* An independent verification consultant would be hired by the implementation agencies to monitor and report the progress/performance of the private developer both during the construction phase as well as during the operation phase
b) *Communication strategy consultant:* A communication strategy consultant would be hired by the implementation agency to work in association with the project developer to conduct

community outreach programs to sensitize people about the project and to educate people on the benefits of electricity

c) *Linkage with Livelihood:* Consultant(s), in the form of NGOs, would be hired to set-up linkage of electricity access to livelihood through activities such as livelihood mapping, identifying livelihood opportunities especially the ones dependent on energy with special efforts for women employment, formulating go to market strategy for select opportunities and also securing funding through Micro-financing institutions.

d) *Capacity Building and Institutional Strengthening (CBIS):* Through discussions with the implementation agency a set of activities would be identified for strengthening key skills and providing support to UPNEDA, MNRE and Private developers. This also includes setting up a cell in MNRE, having at least one Technical Officer and an Account Officer.

e) *Impact evaluation Study:* Impact evaluation studies would be conducted at the household or village level disaggregated across demographic profile in the project areas to assess the socio-economic benefits of the project. This will help document the experience through project implementation and will be disseminated so that it can feed into future project designs

Value added of Bank's support

The Bank's support would build on the existing body of knowledge, work and previous engagements in the global and India mini-grid development. The grant funding of the Global Environment Facility (GEF), implemented by the Bank, is essential to provide a viability gap funding to the development of solar mini-grids, which would have otherwise not been possible to attract private sector participation and scale up the investment. The project will also contribute to the reduction of GHG emissions, by 435,096 tonnes of CO2 equivalent, not only by replacing the current use of kerosene and diesel but also increasing the penetration of renewable energy in the grid in case the grid reaches the project areas. Technical assistance offered under this project will strengthen the capacity of institutions and other stakeholders and enable mini-grid development in villages which are completely un-electrified, partially un-electrified or have poor access to electricity.

IV. Financing (in USD Million)

Total Project Cost:	40.944	Total Bank Financing:	0.00
Financing Gap:	0.00		

Financing Source	**Amount**
Borrower	12.800
Global Environment Facility (GEF)	12.844
Foreign Private Commercial Sources (unidentified)	15.300
Total	40.944

V. Implementation

The project would be implemented under a PPP mode where the implementation agency from the govt. side would be the state nodal agency (UPNEDA). A Project Implementing Unit (PIU) would be set up by UPNEDA. The PIU would be staffed prior to bidding through a multi-disciplinary team comprising officials mapped to technical, procurement, environment and social, and financial management functions. The distribution companies will run the bidding process for the selection of the private developers who will implement the project on ground. The management structure of the proposed project has already been set-up at various levels, and the roles and responsibilities of the

private developer and the state nodal agencies has been clearly defined and documented in the form of Project Implementation Plan. The project developer selected through the competitive bidding process will be responsible for the implementation of the project, day to day operations and collection of tariffs from the consumers.

The project implementation will be under the institutional oversight of a Steering committee which would be formed and headed by Ministry of New and Renewable Energy and comprise representatives from Ministry of Environment and Forest, Government of Uttar Pradesh (GoUP) – from both the Department of Additional Sources of Energy and the Department of Energy, Department of Economic Affairs, Ministry of Rural Development and Ministry of Power.

The implementing agencies through the PIU will provide physical and financial progress reports at periodic intervals. It is envisaged that the PIU will be supported through external consultants.

VI. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04		X
Forests OP/BP 4.36		X
Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11	X	
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12		X
Safety of Dams OP/BP 4.37		X
Projects on International Waterways OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60		X

Comments (optional)

VII. Contact point

World Bank

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Title: Energy Specialist

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Borrower/Client/Recipient

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Implementing Agencies

Name: Ministry of New and Renewable Energy
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VIII. For more information contact:

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Program to Establish Pilots for Access through Renewable Energy (P144678)

Matrix of GEF Comments and Team Reply

	Comments	Team Response
Council – Canada		
1	We note that the project's objective appears to be increasing access to energy in rural areas in India. This is an important goal, and one could warrant GEF support if it has clear global environmental benefits, such as reduced GHG emissions as a result of the adoption of renewable energy technologies. This justification is not clear from the project document. We request this project be re-drafted before final approval, to explicitly justify GEF funding. In addition the final project proposal should be improved by: • Clarifying the use of non-grant instruments, along with how resource reflows will be managed; and • Highlighting how this project relates to and improves upon several previous clean / renewable energy projects already implemented in India: GEF projects 4900, 10, and 76.	Thank you. The following additional information has been added to the PAD. Detailed GHG analysis, using GEF methodology, has been added as Annex-6 to the PAD. The team would like to clarify that the off-grid space in India is in nascent stage, where commercial bank finance is not yet available. Further, the team's assessment is that ecosystem challenges on policy/regulatory clarity on key aspects of tariff and exit policy, prescriptive technical design, non-transparency in disbursement of subsidy in case of govt.'s own schemes, exist along with financial challenges and hence have to be addressed before commercial finance becomes available. Therefore in the current market scenario the team feels that no instrument other than grant based Viability Gap Funding would work. Thus the project does not expect reflows during implementation period. The task team also gathered knowledge about some of the related existing and closed GEF project and incorporated the learning into the design of the proposed project. (i) The Alternate Energy project (76) aimed at promoting commercialization of wind energy and solar photovoltaic (SPV) technologies by strengthening the capacity of the Indian Renewable Energy Department Agency (IREDA). The project closed in 2002 and was successfully contributed to development of SPV manufacturing base. This in turn played a role in drastically reducing the unit cost of solar PV energy which has been identified as the technology for the proposed project in Uttar Pradesh. (ii) The Biomass Energy of India (10) aimed to address the technical barrier to increase the use of bio energy by demonstrating viable biomass powered sub- megawatt electricity generation system to serve rural consumers. When the project closed in 2012 it was successful in demonstrating the technical feasibility of 100% producer gas systems at 100-250 kW capacity but faced repeated forced outages due to availability of

		bio mass and the fact that the operations and maintenance was left to the village community. Based on the experience of the bio mass project the operations and maintenance under the proposed project is the responsibility of the private developer.(iii) The Scale up of Access to Clean Energy for Rural Productive and Domestic Uses is an ongoing project which only focusses on lighting but also thermal (specifically cooking) and mechanical (such as irrigation) energy needs.
Council – Japan		
1	We welcome this project proposal expecting equity participation as co-finance from private project developers. However, while the average co-finance ratio of GEF5 climate change projects is 1:11, this project's co-finance ratio is 1:2. We would like to know the reason behind this and also like to hear if the World Bank could design this project to attract more co-finance.	The team is grateful for the support. The current project co-finance ratio is 1:3. The off-grid space in India is in nascent stage. One of the key constraints that the developers face is the funding constraint. In addition to that this project aims to demonstrate a mini grid project of a scale which has not been implemented in India before. Further, the commercials for the mini-grid sector are yet to be established for commercial bankers to start offering project financing at competitive interest rates. Therefore in the current market scenario the team feels that no instrument other than VGF would work and hence it is unlikely to attract more co-finance.
Council – Germany		
1	Germany approves the following PIF in the work program but asks that the following comments are taken into account: Germany requests that the following requirements are taken into account during the design of the final project proposal: Germany supports the numerous and significant guidance given by the STAP and the GEF Technical Comments. Additionally, we have the following comments: • It is not clear how the activity contributes to the objectives of the GEF in the focal area "climate change" (the proposal does not indicate the relevant GEF objective, successful outcomes and outcome indicators). Promotion of rural access to electricity is not an objective of the GEF.	A detailed GHG analysis has been undertaken using GEF methodology and added to the PAD as Annex 6. The analysis yields direct GHG emission reduction of 435,096 tonnes CO2 equivalent. Indirect benefits estimates are: 1) Bottom-up: 870,192 tonnes CO2 equivalent 2) Top Down: 2,260,482 tonnes CO2 equivalent
2	• The private developer will be responsible for project implementation and for choosing the technology. Germany agrees with the STAP that it is not clear whether the private developer will also be responsible for the operation of installed systems or whether there are sufficient existing rural grids under development where power suppliers are meant to get access and to feeding electricity.	The private developer would also be responsible for the operations and maintenance of the installed systems and collection of tariff from the consumers.

3	• Germany requests to provide more detailed information on the Project Components. It is not fully clear in this context what the baseline scenario is and what the associated baseline projects are.	The projects will be in the state of Uttar Pradesh (in select villages in a few districts in the state). Currently, these villages, are either un-electrified or under served with limited number of hours of power supply. Thus, the project aims to augment grid based supply using off-grid RE sources of power. GEF projects are expected to set-up 17.9MW of solar PV based off-grid projects. These systems are expected to provide improved electricity services to ~380,000 households and a number of productive and commercial users (~600).
4	• Component 2 (page 9) states that the PIUs (Project Implementing Units) would be staffed with professional staff. Would this staff include local professionals or trained people from local villages?	This would include professionals/officials from the Implementing agency (UPNEDA).
Council – United States		
1	The United States requests to review this project again prior to CEO endorsement. The United States believes that the goal of this project is beneficial and that renewable energy could play a significant role in achieving this goal. We are requesting to see this project again because the project lacks discussion of global environmental benefits and is focused on local development goals rather than global environmental improvement. We ask that the project documentation include environmental indicators and an explanation of how the GEF grant will be used to cover the incremental funding gap to provide global environmental benefits. The project documentation should also include an update on whether or not India has agreed to reduce the challenges to implementation of this project through assistance with policy barriers and transaction costs. Finally, we recommend inclusion of public participation to help gauge how well these renewable energy projects will be received by their target audience.	An environment indicator (reduction in GHG emission) has been included in the Results Framework in Annex 1. The GEF's support would build on the existing body of knowledge, work and previous engagements in the global and India mini-grid development. The grant funding of the GEF, implemented by the Bank, is essential to provide a viability gap funding to the development of solar mini-grids, which would have otherwise not been possible to attract private sector participation and scale up the investment. The project will also contribute to the reduction of GHG emissions, by 435,096 tonnes of CO2 equivalent, not only by replacing the current use of kerosene and diesel but also increasing the penetration of renewable energy in the grid in case the grid reaches the project areas. Technical assistance offered under this project will strengthen the capacity of institutions and other stakeholders and enable mini-grid development in villages which are completely un-electrified, partially un-electrified or have poor access to electricity. The Government of India (GoI) has issued a draft mini grid policy and invited comments on the same before finalizing it. Government of Uttar Pradesh (GoUP) has issued a Mini grid policy and UPERC has issued the Mini grid regulation to promote the establishment of Mini grids in Uttar Pradesh. This information is provided in the PAD.

		Focused groups discussions have been conducted in the project area and the feedback has been very positive.
Scientific and Technical Advisory Panel (STAP)		
1	Providing electricity in India to meet the growing demand is a challenge and RE certainly has a role to play. This proposal aims to increase electricity access by developing off-grid system for remote rural areas not yet linked to the growing grid. The barriers to this endeavor are clearly laid out and the indicators relating to MRV are provided. In essence the concept is to set-up incentives for private sector investment where: Generation cost + profit= affordable tariff revenue + MNRE 30% subsidy + GEF VGF.	Agreed
2	Project interventions and baseline activities transfer most financial risks to potential low-income customers and independent power producers. Detailed cost assessment analysis has not been cited, but it seems doubtful that "affordable tariffs" charged to low income households will be a sustainable option. It is not clear why proponents do not consider FiT as a common tool addressing higher RE costs, though there is a cost involved with such a policy.	The tariff for the base level of consumption (50-100 Watts) has been fixed as per the UP Mini grid policy. Detailed financial analysis has been presented in the PAD. The purpose of providing VGF is to ensure that the affordable tariffs are achieved. The Mini grid policy provides an option to the developer to connect to the grid (partially or exclusively) after certain years of operation wherein the recommended FiT mechanism has been used to compensate the developer.
3	Success of project interventions depends largely on having a detailed technology assessment considering different technology options and available resources. It is not clear if such assessment is planned and if so, who will be paying for it. Costs for such assessments usually have to be covered using public funds.	A village survey and resource assessment has been completed and the bidding documents are based on the findings of these studies.
4	Who will operate installed systems? The developer? Depending on the mix of RE systems involved, (wind and solar being variable and hence non-dispatch able), there will be challenges of integration into the system and the means to follow the ever varying daily and seasonal load profiles. Even at the mini-grid level this could well involve some form of energy storage system, load shedding, demand side management, or back-up for variable supply inputs. So the proposal is more complex than a developer simply building a power plant and hoping to sell the electricity generated The information provided in the PID is insufficient to understand who will be responsible for O&M of the mini-grids once established if a private developer exists as seems to be the option in some cases. It is doubtful that full O&M needs and costs could be covered by local communities without assistance.	The private developer will be responsible for the O&M of the project. In case of an exit, the distribution company will be responsible for the O&M.
5	It is not clear what is the current legal, policy and institutional framework to support independent power producers and private developers. Without such frameworks, the risks are high that project interventions will be short-lived	The legal/regulatory framework exists through provisions of the Electricity Act, 2003 for setting up mini-grids (relevant sections of the Act have been highlighted in the PAD). In Uttar Pradesh

		the policy and regularity clarity has been provided through the GoUP Mini grid Policy 2016 and UPERC (Mini –grid Renewable Energy Generation and Supply) Regulations 2016
6	STAP recommends that project proponents consider support for integrated energy systems in remote communities to satisfy needs for key energy services such as cooking, lighting, powering machinery (including pumps) and process heat etc.	The current project proposal already includes lighting solutions for institutions for community use – schools, street lights etc. It also incentivizes the project developer to provide electricity for productive uses. A lot of organizations are already running parallel programs in off grid appliances and cooking space. The project team can engage with them during the implementation supervision stage to scout for synergies if any.
7	The PID does not provide any information about potential GHG savings and global environmental benefits and such information have to be collected during project preparation.	The team is including the reduced GHG emission analysis in the PAD and PID.
8	STAP assumes that residential cooking, at least in some remote villages, is largely satisfied using wood which results in deforestation. How does the project intend to support sustainable/cleaner energy sources for residential cooking, or build necessary links with other ongoing complementary initiatives/projects?	The objective of this project is not to address the residential cooking needs but to develop and demonstrate through implementation a scalable/replicable business model for mini-grids.
9	What is also not clear since the concept revolves around mini- and micro-grids is who will pay for the construction of the distribution lines? This could be a relatively high share of total costs where for example a good wind or hydro site is located some distance away from the load demand	The cost of the distribution lines is part of the total project cost. The funding will from MNRE support, GEF support and Private player's funds.
10	A further complication could be the future need to expand the system as electricity demand increases (as it inevitably will do from increased population, more appliances added etc.). Is the developer expected to construct lines (including transformers etc.) of sufficient capacity to meet future expansion? This will add to the costs that may not see a return on investment for several years but would be cheaper in the long run.	The current system sizing provides for scope of electricity demand increases.