

Concept Note

Project/Programme Title:	Transforming the Landscape for Off-Grid Electrification in the Philippines
Country(ies):	Philippines
National Designated Authority(ies) (NDA):	Climate Change Commission (CCC)
Accredited Entity(ies) (AE):	Land Bank of the Philippines (LANDBANK)
Date of first submission/ version number:	
Date of current submission/ version number	June 11, 2020 V6



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Notes

- The maximum number of pages should **not exceed 12 pages**, excluding annexes. Proposals exceeding the prescribed length will not be assessed within the indicative service standard time of 30 days.
- As per the Information Disclosure Policy, the concept note, and additional documents provided to the Secretariat can be disclosed unless marked by the Accredited Entity(ies) (or NDAs) as confidential.
- The relevant National Designated Authority(ies) will be informed by the Secretariat of the concept note upon receipt.
- NDA can also submit the concept note directly with or without an identified accredited entity at this stage. In this case, they can leave blank the section related to the accredited entity. The Secretariat will inform the accredited entity(ies) nominated by the NDA, if any.
- Accredited Entities and/or NDAs are encouraged to submit a Concept Note before making a request for project preparation support from the Project Preparation Facility (PPF).
- Further information on GCF concept note preparation can be found on GCF website [Funding Projects Fine Print](#).

A. Project/Programme Summary (max. 1 page)			
A.1. Project or programme	<input type="checkbox"/> Project <input checked="" type="checkbox"/> Programme	A.2. Public or private sector	<input checked="" type="checkbox"/> Public sector <input type="checkbox"/> Private sector
A.3. Is the CN submitted in response to an RFP?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, specify the RFP: _____	A.4. Confidentiality¹	<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Not confidential
A.5. Indicate the result areas for the project/programme	<p>Mitigation: Reduced emissions from:</p> <input checked="" type="checkbox"/> Energy access and power generation <input type="checkbox"/> Low emission transport <input type="checkbox"/> Buildings, cities and industries and appliances <input type="checkbox"/> Forestry and land use <p>Adaptation: Increased resilience of:</p> <input type="checkbox"/> Most vulnerable people and communities <input type="checkbox"/> Health and well-being, and food and water security <input type="checkbox"/> Infrastructure and built environment <input type="checkbox"/> Ecosystem and ecosystem services		
A.6. Estimated mitigation impact (tCO₂eq over lifespan)	185,852	A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)	4,800 HH or 24,000 individuals or 1.4% of 340,000 HH in 1,700 island barangays
A.8. Indicative total project cost (GCF + co-finance)	Amount: USD 28,171,101	A.9. Indicative GCF funding requested	Amount: USD 17,999,290
A.10. Mark the type of financial instrument requested for the GCF funding	<input checked="" type="checkbox"/> Grant <input type="checkbox"/> Reimbursable grant <input type="checkbox"/> Guarantees <input type="checkbox"/> Equity <input type="checkbox"/> Subordinated loan <input checked="" type="checkbox"/> Senior Loan <input type="checkbox"/> Other: specify _____		
A.11. Estimated duration of project/programme:	a) disbursement period: 2 years b) repayment period, if applicable: 20 years	A.12. Estimated project/ Programme lifespan	This refers to the total period over which the investment is effective. 20 years
A.13. Is funding from the Project Preparation Facility requested?²	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other support received <input checked="" type="checkbox"/> If so, by who: Land Bank of the Philippines (LANDBANK)	A.14. ESS category³	<input type="checkbox"/> A or I-1 <input checked="" type="checkbox"/> B or I-2 <input type="checkbox"/> C or I-3
A.15. Is the CN aligned with your accreditation standard?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	A.16. Has the CN been shared with the NDA?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
A.17. AMA signed (if submitted by AE)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If no, specify the status of AMA negotiations and expected date of signing: Under review by LBP Legal Department prior to submission of Funding Proposal	A.18. Is the CN included in the Entity Work Programme?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
A.19. Project/Programme, objectives and approach of programme/project (max 100 words)	The project is an expanded pilot for the construction of 7.8MW comprising of 6MW on-grid solar and 1.8MW of off-grid solar micro-grid. The project will further validate the public-private partnership model and expand the knowledge base in order to minimize and manage risk for a nationwide adoption and strategic use of distributed renewable energy technology as a component of the ECs energy mix that will optimize the energy value chain. Landbank as the accredited entity is the executing entity and will implement the project with co-executing entities AIEC Island Light and Water Corporation, Inc. and One Renewable Energy Enterprise, Inc. who were selected for their expertise and relationship with the ECs.		

¹ Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy ([Decision B.12/35](#)) and the Review of the Initial Proposal Approval Process ([Decision B.17/18](#)).

² See [here](#) for access to project preparation support request template and guidelines

³ Refer to the Fund's environmental and social safeguards ([Decision B.07/02](#))

B. Project/Programme Information (max. 8 pages)

B.1. Context and baseline (max. 2 pages)

Current State of Philippine Energy Sector

Energy is a key component for socio-economic development. The Philippines' energy sector faces the challenges of (1) heavy reliance on fossil fuels and imported energy; (2) high energy demand; and (3) tough regulatory environment. The average annual growth of Philippine gross domestic product (GDP) in the past ten years had been 5.4% and the country plans to increase its GDP growth to 7% by 2040. The planned GDP growth will drive higher energy demand.⁴

Based on 2018 DOE Report, the energy mix of the Philippines comprise of 70% fossil fuel and 30% renewable, consisting mainly of geothermal and hydro (8.2% and 15.5%, respectively) and only 3.8% solar the country's most abundant resource. The Philippine Energy Plan (PEP) 2017-2040, the DOE's blueprint to secure the country's energy future highlights the top three strategic directions of the energy sector to: ensure energy security, expand energy access and promote a low carbon future.⁵

The archipelagic geography of the Philippines with its 7,641 islands poses an enormous challenge to the national goal of total electrification. Of the 24.2M consumers nationwide, 60% are served by ECs, while 39.9% are served by private distribution companies and 0.1% by municipal electricity systems. However, as of March 2019, there are still 2.9 million households or about 12% of total households without access to electricity, more than half of which are in "off-grid" areas.⁶ The National Electrification Administration (NEA) estimates that there are still some 1,700 remote and isolated island barangays that are either unserved or underserved. Their distance from the mainland makes it expensive, and in many cases impossible to connect to the main grid. The low volume of demand (<1MW) seasonal income from the residents (living off fishing, farming and in some cases local tourism) make them high credit risk. Tedious regulatory process, lack of information on prospective areas for electrification and difficulties in obtaining waivers from incumbent utility franchise holders make it difficult to attract private sector participation in island electrification developments. The lack of / insufficiency of power affects the quality of life and restricts economic development of the island residents. Most of these areas are within the franchise of ECs, whose major challenge is to find an innovative solution to provide 24x7 power to these islands, improve operational efficiencies and at the same time provide assurance to the investor of return of capital.

The EPIRA⁷ mandates the National Power Corporation Small Power Utilities Group (NPC-SPUG) to energize off-grid or missionary areas. Currently, NPC-SPUG operates 285 power plants in 239 areas serving customers in isolated grids/areas consisting of 47 Distribution Utilities (Electric Cooperatives and Local Government Units). Except for 1 hydro facility, all the power plants are serviced by diesel or bunker-fired generators. However, due to the prohibitive cost of delivering power using diesel generator, NPC-SPUG had been unable to serve all off-grid areas, and not all areas served are fully served. Only thirty-one (31) out of the 239 areas (or 13 %) have 24-hour electric service, while 19 (or 8%) have 12-23 hours service and the remaining 189 or 79 % contend with less than 12 hours of electricity per day.⁸ These "off-grid" power supply represents 2% of the installed capacity and about 1.4% of total gross generation of 1,315 GWh in the Philippines.⁹ (See Annex I for an illustration of the Philippine Off-Grid Power System.) The demand in small island grids is therefore grossly understated since most of the areas are underserved.

Electricity Tariff and Role of Renewable Energy in Off-grid Electrification

To address the high cost of power vis-à-vis the capacity to pay of people in remote barangays, government subsidy, through the universal charge for missionary electrification (UCME) was provided for under the EPIRA. This allowed NPC-SPUG to charge consumers only the Subsidized Approved Generation Rat (SAGR) for power generation, while it collects from the UCME the balance of its full generation cost. However, in areas without NPC-SPUG operations, households have to pay the full cost of power, thus, people in the islands pay much higher tariff than their mainland counterpart, resulting in inequity among consumers. In a study conducted by NPC-SPUG and ERC, Diesel Power Plants (DPP) were determined to have higher generation cost compared to renewable energy (RE) sources.

⁴ The Philippines energy future and low-carbon development strategies, retrieved from <https://www.sciencedirect.com/science/article/pii/S0360544218300458>

⁵ Department of Energy, Philippine Energy Plan 2017-2040, <https://www.doe.gov.ph/pep?page=1>

⁶ Rivera, D. (2018). Gatchalian pushes review of electrification target. The Philippine Star. <https://www.philstar.com/business/2018/04/06/1803131/gatchalian-pushes-review-electrification-target>. Off-grid refers to areas not connected to electrical systems composed of interconnected transmission lines, distribution, lines sub-stations and related facilities for the purpose of conveyance on bulk power on the grid of the Philippines (RE Law, Sec. 3).

⁷ Republic Act No. 9136 otherwise known as the "Electric Power Industry Reform Act (EPIRA) of 2001 is an act ordaining reforms in the Philippine Electric Power Industry."

⁸ NPC-SPUG, <https://www.spug.ph/index.php/transparency/about-us#service-hours>

⁹ DOE (2018). Presentation at E-Power Mo: "Empowering Filipinos Through Informed Energy Plan and Policies". Iloilo City. Oct. 2018

Results of the study showed that the weighted average cost of diesel is Php 16.40 (\$0.328) while for renewable energy average costs are lower at Php8.20 for wind, Php5.90 for geothermal, Php 5.90 for hydropower and Php 4.70 for solar.¹⁰ With the lower cost of RE there is compelling reason to advance the use of renewable energy in place of diesel power generation. The use of RE will not only lower costs but also help mitigate environmental costs involved in the use of fossil fuel in power generation.

While the mandate to serve off-grid areas was given to NPC-SPUG, the ECs are not devoid of the pressure to energize the remaining unserved areas within their franchise areas. In 2013, Philippine Congress enacted RA 10531 which strengthened NEA's powers to pursue total electrification, particularly missionary electrification through the ECs. Chapter III Section 9 (j-1) of the law also empowered the EC to "construct, acquire, own, operate and maintain power generation facilities within its franchise areas". In view of this, NEA Administrator, Edgardo Masongsong, has called on the local ECs to diversify power sources to meet the growing demand for electricity, and urged all 121 of them to look into developing solar, hydro, and biomass power plants specifically at least 1MW solar plant per year to increase their capacities and help the environment.¹¹

AIEC Mandate, Initiatives and Experience

The Association of Isolated Electric Cooperatives (AIEC) was formed in 2009 by 42 ECs with significant off-grid areas formed in order to seek ways to accelerate rural electrification and improve upon the current off-grid electrification regime that mainly relies on NPC-SPUG's use of diesel generators for limited hours of power supply.

As early as 2009, AIEC-member Romblon Electric Cooperative (ROMELCO) has embarked on a 900kW hydropower facility in Sibuyan Island, Romblon in partnership with private sector. In March 2016, ROMELCO launched a 30 kWp PV system with 180 kWh lithium-ion battery and 15 kW diesel generator to provide 24x7 power to 244 HH of Cobrador Island, Romblon. Another EC, the Antique Electric Cooperative (ANTECO) also initiated its own small island off-grid pilot renewable energy hybrid projects. Both the ROMELCO and ANTECO pilot Solar PV hybrid projects were ADB, supported by ADB under its Energy for All initiative and in partnership with NEA, Local Government Unit (LGU) and private sector. The aim was to draw from these pilot cases viable business models that will ensure access to affordable, reliable, sustainable and resilient energy for its franchise areas, while at the same time contributing to the country's environmental and energy security goals. In its main distribution grid, ROMELCO also commissioned in the first quarter of 2019 a 900 kW Romblon Wind Power Plant, which was partly funded by a grant from the Japanese Ministry of the Environment. In addition, ROMELCO has completed its 200 kW solar PV-rooftop grid-connected project in the 1st quarter of 2020.

The above projects have given AIEC-member ECs, ROMELCO and ANTECO the experience and key learnings on how to implement sustainable off-grid projects using renewable energy. Specifically, ANTECO's solar hybrid micro-grid consisting of 50kWp PV, 278 kwh lithium-ion battery storage and 54 kW diesel generator featured a prepaid metering system to provide all-inclusive, 24x7 power to the 200 residents of Mararison Island, Culasi, Antique. This model introduced a public-private partnership between the EC, the Local Government Unit (LGU) and private sector (One Renewable Energy Enterprise, Inc.) with a partial grant from the Asian Development Bank (ADB). The project introduced two innovations, (i) use of prepaid metering system which allowed universal access and ease in collection, and (ii) co-ownership of the power plant by a local private entity. The local private entity provided technical and financial support to develop, build, operate and eventually transfer technology.

In the light of the fresh mandate for ECs to expand its missionary electrification activities, AIEC has formally partnered with Island Light and Power and incorporated a legal entity, AIEC Light and Power Corp. (AIEC- ILAW) for the purpose of developing, constructing, financing and operating off-grid electrification projects.

B.2. Project/Programme description (max. 3 pages)

The project is an expanded pilot aimed at assisting the Philippine government to achieve its total electrification goals, through the implementation of RE power generation projects that will serve even the remotest island in the country. This will be done by means of replicating and scaling up the implementation of successful DRETs (on-grid rooftop and mini-grid projects), as previously demonstrated by 2 of the country's ECs, ROMELCO and ANTECO. Specifically, the objectives of the project are: (i) to contribute to the country's climate change mitigation efforts by implementing on-grid and off-grid power projects that will further demonstrate the viability of DRETs and promote the shift from diesel-based power generation in off-grid areas to RE; (ii) to engender acceptance by stakeholders (government, private sector, financing institutions, consuming public, etc) of DRETs as a solution to address the last mile electrification in the country; and (iii) to build capacity among stakeholders, especially ECs on how to successfully implement DRETs.

¹⁰ Diesel Max P82.80 / Min P10.60; one of the components of the DPP is the fuel recovery fee that allows full reimbursement of cost of fuel in generating electricity. Diesel prices has increased from P18.35 / liter in January 2016 to P43.30 / liter in July 2019. Delivered cost of fuel is even higher in remote island barangays.

¹¹ Jon Viktor Cabuenas, radio interview with NEA Administrator Edgardo Masongsong over GMA Super Radyo dzBB

As envisioned, the expanded pilot project will be a **public-private partnership** for the construction of solar power generation plants with a cumulative capacity of 7.8 MW comprising of at least 6 on-grid solar PV rooftop power generation projects of 500kwp - 1MW capacity each, and at least 24 smaller-scale off-grid solar PV hybrid projects up to 1.8 MW total capacity in remote islands covered by selected ECs that **features prepaid metering**. Since templates for the development of these types of projects have already been established, there will no need to require full blown individual feasibility study for each project. Rather, replication of the project will only need a technical site visit for actual sizing and public consultation to ensure community acceptance and support. The micro-grid renewable energy solution default design is doable for solar PV because of the abundance of sunlight everywhere in the Philippines, However, other RE technologies will also be considered, when sufficient resources are available in specific areas in future iterations.

LANDBANK as a GCF-accredited entity will carry out this project in partnership with pre-identified co-executing entities, AIEC- ILAW as Project Developer and One Renewable Energy Enterprise, Inc. (OREEi) Engineering, Procurement and Construction (EPC) / Borrower. Together with LBP, AIEC-ILAW and OREEi will compose the Project Executing Team (PET). The co-executing entities were selected for their expertise and relationships with the EC, which are necessary to fast track project development, further validate the business model and expand the knowledge base in order to minimize and manage risk for a nationwide adoption and strategic use of Distributed Renewable Energy Technology (DRET) in the future. The use of DRET is an essential component of the ECs energy mix that would lead to the optimization of the energy value chain.

The foundation for this proposal is based on the PET's assessment of the rural electrification sector and the key learnings of AIEC-ILAW and OREEi in implementing innovative RE business models. These include:

- Missionary electrification through NPC-SPUG are largely dependent on inefficient, fossil fuel-based supply and the subsidies from the UCME that are presently borne by other consumers will be phased out in the near future. Due to high cost of operation NPC-SPUG operations have been limited and many areas are either left unserved or are underserved.
- In an archipelago like the Philippines, small scale power generation from indigenous renewable energy resource in a decentralized / distributed set-up is more efficient, cheaper, and cleaner alternative to the traditional large central power plants and high-voltage transmission lines or diesel-based power plants. They offer consumers energy security and lower cost because energy is produced where it is needed; incur lower transmission cost / losses and higher resiliency due to localized impact of typhoons and other natural calamities that results to faster restoration and recovery. However, there is still limited investment for RE development and slow adoption of distributed renewable energy technology (DRET) in off-grid areas despite incentives from the RE Act due to policy and regulatory barriers, lack of project finance and lack of champions to steer the project.
- The EC has the mandate for 100% electrification, has the largest reach / consumer base and influence among all distribution utilities (DUs) thus should be the primary stakeholder of the initiative to operationalize the provisions of RA 10531 to own and operate power generation. Prepaid metering promotes energy efficiency: 100% inclusion by all types of consumers to the grid and improves efficiency of billing and collection and assures return of investment.
- Partnering with a local small and medium enterprises (SME) in the private sector for technology, project development and financial support will fast track the roll-out of off-grid projects and minimize dependency on national government subsidies/ grants for funding. SMEs have the agility and appetite for small developments but lack the financial muscle of the big developers.
- Commercial banks are still reluctant to fund small-scale renewable energy projects because they are perceived as risky with low return. Showcasing a portfolio of successful projects will create a paradigm shift that renewable energy projects are sustainable for both the DU and the financial investor / bank.
- The cost of renewable energy is going down. However, at present, the biggest cost component is energy storage comprising 30-40% of total build cost but this cost is expected to be significantly decline in the next 3-5 years. A partial one-time grant will directly impact cost of electricity and promote inclusive economic growth in far flung barangays without expensive recurring burden to the government.

Roles and Responsibilities of Project Executing Team Members:

- **LANDBANK** – Lead Executing Entity / Loan Financing Partner and Final Project Evaluator and Approver
- **AIEC Island Light and Water Corp. (AIEC-ILAW)** – Co-executing entity and project developer. Coordinates with 42 AIEC members to consolidate and prioritize energy requirements. Conducts preliminary site visit to validate and pre-qualify projects and ECs based on agreed EC Selection Criteria and assists the EC during the due diligence process conducted by Landbank.
- **One Renewable Energy Enterprise, Inc. (OREEi)** – Co-executing entity and **private technical partner**. Responsible for project engineering, procurement and construction (EPC) of power plants that will be approved by LBP and GCF under this project. Initial borrower during the project construction period and turns over asset

to the EC who assumes loan balance. Provides remote online system monitoring and preventive maintenance. Hosts cloud based **prepaid metering system** for the EC to assure revenue collections.

Key Stakeholders:

- **Electric Cooperative (EC)** – Primary off-taker / legal franchise holder. Ultimate grant beneficiary and owns the generation plant asset under the embedded power provision of the EPIRA law. Commissions OREEi to build, operate and transfer (DBOT) the solar power plant within an agreed period. Issues NTP and pays the 20% down payment for the project. Assumes balance of loan from OREEi upon turn-over of the asset. Manages transmission and distribution of power to end users. Collects payments for energy sales from consumers. Ensures payment of loan amortization.
- **Department of Energy (DOE) / Energy Regulatory Commission / National Electrification Administration (NEA)** – regulatory entities that will enhance the existing regulatory framework and provide an enabling environment for investments and promote a paradigm shift towards renewable mini-grids, the project will initiate and/or support efforts to strengthen the institutional and regulatory framework for the promotion of renewable energy in off-grid areas.
- **National Power Corporation-Small Power Utilities Group** – Government entity that will adopt DRETs in their off-grid power generation activities.

Support Fund Provider:

- **Green Climate Fund** – Grant Giving and Co-Lending Organization

Project Components

The Project has three (3) main components which are considered key to the achievement of its objectives:

Component 1: Technical assistance for policy development, promotion and operationalization of rules and regulations governing renewable energy and distributed generation

To enhance the enabling environment for RE investments and promote a paradigm shift towards renewable mini-grids for electrification of remote island barangays, LANDBANK will support efforts of the Department of Energy (DOE) and the National Electrification Administration (NEA) to strengthen the institutional and regulatory framework for the promotion of renewable energy in off-grid areas. Among the areas of support are:

- Support the development of a roadmap for the use of RE and distributed generation and its integration into the National Energy Plan.
- Support new legislations that would streamline the rules and regulations to allow more flexible ownership of power plants by ECs (joint owners with PS), ease and allow for exemption of smaller- scale projects from CSP rules, rationalize and continue to provide incentives for off-grid projects, allow ECs to manage and determine supplier of power in their franchise areas, including off-grid islands.
- Support formulation and use of benchmark tariffs, in lieu of CSP for tariff determination in order to reduce regulatory risks associated with off-grid project development and encourage investments in unserved and underserved areas.
- Encourage private sector participation in off-grid RE power generation to replace and expand NPC fossil-based facilities; Promote shift of NPC activities, as provider of last resort, to serve areas unreachable to ECs and private sector developers.
- Support the DOE and ERC in developing National Quality Performance Standards and Accreditation Procedures for small and medium scale RE power generation.
- Support project development and execution of small RE project development by pushing policies and incentives for green finance in the domestic banking system, encouraging banks to finance RE projects by creating awareness, information and knowledge about benefits and sustainability of RE technologies and providing for government guarantee / recourse of private banks that lend to RE developers.

Component 2: Financing investments in mini-grid infrastructure projects

LANDBANK and GCF will provide investment financing for mini-grid infrastructure projects, as described earlier, in accordance with the project framework set forth in a Project Operations Manual (POM), that LANDBANK will prepare in collaboration with its co-executing entities, AIEC-ILAW and OREEi.

To operationalize the project, there will be three cash streams: credit facilities will be established: a short-term working capital revolving credit line for OREEi to finance construction of the project; capital expenditure grant (storage) for EC and a long-term loan for the EC to finance the balance of the solar plant. These facilities are described in detail in the following page.

1. **Working Capital Revolving Credit Line for OREEi (CL)** – revolving credit line enable OREEi purchase major materials in bulk and build micro-grid systems simultaneously to complete the project within 2-3 years. The CL is estimated net of the EC 20% down payment. The duration of the build is estimated between 6-8 months with consideration for ordering lead time, site topography and weather conditions. The revolving credit line will be availed upon achievement of milestones and will revert upon completion of the project and turn-over of the solar plant to the EC.
2. **Capital Expenditure Grant for EC** – represents cost of storage (battery, energy management system and accessories) that will be donated by GCF to the qualified EC. (For discussion whether the battery will be purchased directly by LBP / GCF or coursed through OREEi procurement)
3. **Capital Expenditure Loan for EC** – long-term loan facility for EC / asset owner comprising of 50% LBP and 50% GCF funds for qualified EC based on the EC selection criteria set forth in the POM that is pre-qualified by AIEC-ILAW and final evaluation and approval of LANDBANK Lending Unit where the EC is located. Upon completion and turn-over of the solar plant, the EC will assume the balance of the loan. The EC is the ultimate asset owner, borrower and grant beneficiary of the project and will individually work out the loan terms with the respective LANDBANK Lending Center based on project cashflows and other considerations.

For this component, the total project build cost is estimated at USD24.074M. The contributions of each stakeholder are detailed in the table below:

	ON-GRID	OFF-GRID	TOTAL PROJECT
20% Equity (EC)	USD 234,000	USD 142,120	USD 4,814,882
GCF Grant for Storage (Battery) and 200 prepaid meters / MG site		356,070	8,545,672
Loan from GCF	468,000	106,205	5,356,928
Loan from LBP	468,000	106,205	5,356,928
Total project cost / site	1,170,000	710,600	24,074,411
Number of sites	6	24	
Grand Total	7,020,000	17,054,411	24,074,411

The cost of energy storage and **prepaid meters** will be the grant component from the GCF as it presently accounts for 30-50% of the cost of the mini-grid or 35% of total project cost. The remaining 45% of the project build cost will be repaid based on the projected cash flow of the project but not to exceed 20 years inclusive of maximum of 2 years grace period on the principal. The grant will reduce the levelized cost of energy (LCOE) over the life of the asset to a more affordable level that will ultimately benefit the customer.

The on-grid / off-grid combination will ensure efficient use of resources and help the EC achieve an overall lower levelized cost of energy within their franchise area. The on-grid component is intended to supplement peak hours requirement of the main grid to help stabilize the power supply and generate savings from high cost of spot purchase from Wholesale Electricity Spot Market (WESM). The micro-grid component is intended to complement the NPC-SPUG efforts to energize the 1,700 remote unserved/underserved remote island barangays identified by NEA. The model assumes no UCME subsidy and is modelled for full commercial recovery with one-time grant to help the EC manage the overall tariff to charge to their subscribers.

Component 3: Capacity building and technical support to the public and private sectors in operations and maintenance of renewable mini-grids

The GCF Capacity Building Grant component will allow AIEC-ILAW provide assistance to ECs and build local capacity to operate and maintain solar on-grid rooftops and off-grid mini-grids to ensure smooth operations and resilience, as well as quick recovery in case of typhoons / earthquakes or other natural calamities. Technical and capacity building support will be provided in the form of:

- Staff training and technical assistance in organizational development and management, i.e., financial management and operation of on-grid solar rooftops and mini-grids nation-wide.
- Structured on the job training in the first year of operations to ensure knowledge transfer of the operations and maintenance of solar on-grid rooftop systems and off-grid mini-grid systems. Sponsor / organize inter-EC friendly competitions designed to promote knowledge sharing and best practice on a continuing basis.

- Development of a monitoring system that would allow for the systematic and efficient gathering of operational and maintenance data especially for mini-grid systems located in remote off-grid areas. This monitoring system would enable the ECs to undertake data analytics to ensure that the mini-grids are operating as optimally as possible. Such a monitoring system would also allow the ECs to better manage securing fuel, spare parts, lubricating oils, other consumables needed to keep the mini-grids running on a 24/7 basis. This capability is crucial given the difficulties in accessing the remote sites and transporting equipment and supplies.
- Development of regional hubs for spares parts and other RE consumables where the EC can purchase replacement parts to reduce system downtime and reduce inventory costs. Consider local fabrication of parts to ensure availability of parts at a lower cost.
- Conduct of road shows through local events, village-based consultations and meetings focusing on raising awareness in educating local communities and various stakeholders about the benefits of renewable energy as well as availability of loan financing for renewable energy.
- Support and training to staff of ECs in the identification and development of potential embedded / distributed RE-based generation projects that would improve the over-all efficiency, reliability and resilience of the power network. In the recent years, power distribution lines have been aggressively extended to the fringes of ECs' service areas to reach even the remotest sites. However, this has resulted in service areas that are very prone to power outages because of their distance from the load centers where the main power plants are located. Lines stretching into the sparsely populated areas are also vulnerable to faults due to weather disturbances, creeping vegetation and other natural calamities. All these lead to losses for the ECs, increased line maintenance costs and unsatisfied customers. The capacity to assess and implement distributed generation options against simply extending power lines to provide electricity service would greatly enhance the ECs' operations and improve quality and resiliency of electricity service .

The project is aligned with the country's climate and sustainable development agenda which is among the seven priority outcomes of the National Climate Change Action Plan (NCCAP) 2018-2022. The country's Intended Nationally Determined Contributions (INDC) aims to reduce GHG emissions by 70% by 2030 relative to its business-as-usual scenario in 2000 to 2030.

It is also consistent with the vision of the Philippine Energy Plan (PEP) 2017-2040 "to power up Filipino communities through clean, efficient, robust and sustainable energy systems that will create wealth, propel industries and transform the lives of men and women and the generations to come".

Project Management and Execution

LANDBANK will establish a Project Management Office (PMO) for the day-to-day operations and management of the project, the under the supervision of the Lending Program Management Group (LPMG). The PMO will be comprised of members from LANDBANK (Executing Entity), EC (Asset Owner), AIEC-ILAW (Project Developer) and OREEi (EPC). The PMO will provide oversight functions in the implementation and monitoring of the projects. The PMO will define the project timelines, milestones, disbursement procedures and reporting protocols for the duration of the project.

The PMO will approve the EC selection criteria and coordinate overall project timelines with the co-executing entities and the EC. AIEC-ILAW will consolidate EC power requirements and conduct the preliminary site visit to validate, pre-qualify and prioritize EC power requirements. OREEi will conduct technical site visit on recommended sites and prepare solution design and Bill of Materials (BOM) for approval of the EC and PMO. LBP as the Accredited Executing Entity and its Lending Centres nationwide is the final evaluator and approver of the EC projects.

The PMO will notify the EC of approved projects as basis for issuance of the notice to proceed (NTP) to OREEi to initiate procurement and construction of the power generation plant in compliance with the guidelines of the procurement law. Upon issuance of the NTP LBP will make available to a project credit line equivalent to the total cost of the project. OREEi will regularly report achievement of project milestones for progress billings and draw from the project credit line facility. Upon completion of the project, OREEi will train EC personnel on the operations and maintenance of the power plant. After the turn-over and acceptance of the asset, LBP will deem OREEi credit line fully paid and the EC will assume the balance of the project loan.

The microgrid will feature a prepaid metering system to ensure 100% inclusion of HH, efficient customer billing and collection services and assurance of return of investment. OREEi will manage a cloud based prepaid management system to provide operations efficiency. The prepaid sales / cash collections individual ECs will be deposited to a designated EC Land Bank account that will serve as payment remittance account for repayment of the EC loan.

Project Outcomes

The project is expected to transform the landscape for off-grid electrification in the Philippines. Specifically, it will result in:

- Enhanced capacity of key institutions to plan, streamline and implement regulatory and administrative processes for renewable energy based mini-grids.
- Successful demonstration of a model for a reliable, resilient and potentially cheaper source of electricity that will convince the ECs and other developers of the viability of DRETs and initiate a nationwide integration of DRETs to the National Energy Plan and its adoption both for on-grid and off-grid applications to drive 100% electrification.
- Availability of operational data that can be easily accessed and processed by the ECs. The proper storage and analysis of operational data is key to ensuring the efficient and continuous operation of mini-grids after they have been commissioned.
- Contribution to the growth of SMEs in the RE industry and related local businesses like fabrication of spare parts / support for RE operations and maintenance.
- Opening of credit facilities / project finance of private banks to RE SMEs for RE projects that they consider risky with a low rate of return. Land Bank undertaking to finance a huge project sends a strong message of confidence to the banking industry.

B.3. Expected project results aligned with the GCF investment criteria (max. 3 pages)

The project objectives are fully consistent with the GCF's six investment criteria. Following is an initial assessment of the expected performance of the project against the six GCF investment criteria.

1. Impact Potential

Mitigation Impact

In most island barangays, the main source of power is diesel generator that run between 4-6 hours per day or a baseline CO2 emission of 446.76 Tons per year excluding emissions from delivery of diesel to island. The franchise areas of the 121 EC cover 12M households or 89M people. The project has a potential to influence the ECs to adopt renewable energy and significantly shift the energy mix towards a clean source of energy.

The project impact is 185,852 Tons CO2 mitigation for 6 MW on-grid and 24 off-grid systems as follows:

PARTICULARS	ON-GRID	OFF-GRID	TOTAL
Proposed kwp / site	1,000	75	
CO2 Tons mitigated / site / year	1,191.36	89.35	
Project life	20 years	20 years	
Lifetime CO2 Tons mitigated / site /	23,827.20	1,787.04	
Target Project sites	6	24	
CO2 Tons Impact Potential	142,963.20	42,888.96	185,852

The mitigation potential for a full-blown nationwide roll-out for this model is 5.9M Tons CO2 covering a conservative 1MW on-grid for 121 ECs and 1,700 unserved / underserved islands excluding NPC-SPUG areas that can also be hybridized.

PARTICULARS	ON-GRID	OFF-GRID	TOTAL
Potential Market	121	1,700	
Lifetime CO2 Tons mitigated / site	23,827.20	1,787.04	
Project Lifetime CO2 Tons mitigated	2,883,091.20	3,037,968	5,921,059.20

Adaptation Impact

The target off-grid areas for the project are unserved and underserved islands that are home to the 800,000 fisher-folk in the country. Based on the latest report of the Philippine Statistics Authority (PSA), fishermen and farmers remain among the poorest in the country despite being the 8th biggest country in the world with more than 2M tons produced at an estimated USD \$2.5B revenues. Without the GCF intervention, the future looks bleak in the fishing communities whose lives are most affected by typhoons, coral reef destruction, over fishing, oil spills, toxic waste and rising sea levels.

On a national level the impact on the livelihood of this communities will result to food insecurity (fish is prominent in the Filipino diet) and urban migration due to lack of economic activity in these island barangays. The introduction of 24x7 power will allow them to set-up post-harvest facilities that will directly reduce over fishing and at the same time partially address food security. The freezers will enable them to preserve catch / increase shelf life for a better market price and create a value-added product (ready to cook fish) that can be sold to a higher value market.

2. Paradigm Shift Potential

As discussed in the foregoing, the 121 ECs nationwide serve 60% of the country's electricity consumers. They have the opportunity and the greatest influence to drive a paradigm shift and transition from the centralized carbon-intensive, subsidy-dependent public-sector operation as the prevailing model for providing energy access to a decentralized renewable energy technology. While the grant component is necessary in this project, the cost of energy storage is expected to be cheaper in the next 3-5 years that will allow for completely commercial projects with full investment recovery.

The model can be replicated in serving the 2.9M households that presently do not have access to energy. Further, Camotes and Bantayan Islands can be studied to pilot possible conversion of NPC-SPUG areas to RE hybrid micro-grids to reduce dependence from oil and coal for energy.

LANDBANK will come up with a comprehensive plan for documenting the lessons learned and for sharing such lessons within the LANDBANK itself for its future financing programs, in particular, the nationwide scale-up of the mini-grid project to be subsequently proposed to the GCF, and also with other individuals, projects or institutions involved in the project, including through the monitoring and evaluation of the program.

3. Sustainable Development

Environmental Co-Benefits

Use of renewable energy in power generation will contribute to the preservation of the environment and improvement of air quality by reducing recurring emissions of local pollutants, i.e., nitrogen oxides, non-methane volatile organic compounds and sulphur dioxide, from diesel power plants as well as reducing pollution from vehicles (trucks, barges) used to transport diesel or bunker oil fuels to the power plants. Distributed renewable energy technology helps preserve the environment by minimizing disturbance to marine life and habitats. The proposed capacity of 50kwp / 100 kwp has a small footprint but the impact to environment can be further minimized by designating power plant site to non-productive land in order not to infringe on productive agricultural land.

Economic and Social Co-Benefits

Electricity impacts every aspect of daily life. It is a powerful driver of economic activity and social development. In the home, illumination increases education possibilities as students are able to study during night time. Fewer kerosene lamps that emit harmful fumes improve comfort and health conditions. In the community, street light increase safety and security of the residents. Television, radio, cell phones and the internet improve connectivity and communication and reduce isolation of remote barangays. They provide entertainment, access to information, make distance learning possible, strengthens education and knowledge sharing.

Productive use of energy enables small businesses and clinics or hospitals to operate extended hours. Refrigeration provides opportunities to sell frozen products like ice or ice candy, increase the durability of meat and poultry that are not available in the islands. Television, radio, cell phones and the internet provide access to market news, improve coordination with suppliers and distributors and enable mobile banking. It will also generate revenues for the local government in the form of direct taxes from investments and jobs related to the mini-grids and their multiplier effect in terms of new businesses that will be created.

During the construction of island micro-grid and mainland on-grid power plants, there will be opportunities for recruitment and training of local manpower to participate in the project. After the construction of the power plant, there is an opportunity to engage with the EC for operations and maintenance of the power plant and / or continue to work on other solar projects with the training and skills acquired during the construction of the solar power plant.

Gender-sensitive development impact

Women in the Philippines are still predominantly looked up to for the upkeep of the household. Access to energy will enable the home to acquire small household appliances like rice cooker, electric iron and washing machines that will lighten the chores of women. In island barangays where there is tourism potential, women have the opportunity to contribute to household income by opening their homes to tourists (homestay) and providing support services (tour guides, massage, etc.).

4. Needs of Recipients

Vulnerability of the country and/or specific vulnerable groups

The project is primarily aimed at mitigation but as noted earlier, it is also envisaged to lead to the increased resilience to climate change risks of the people and economic assets in the island communities. The Philippines' heavy reliance on agriculture (31% of employment) and high exposure to climate-related disasters on average 19 events per year over the last decade include it as among a group of sovereigns assessed as one of the most vulnerable to climate change.¹² Diversifying power sources of mini-grids creates more reliable and resilient systems and renewable energy solutions can provide resilient power throughout disasters and calamities.

Economic and social development level of the country and the affected population

As discussed in the foregoing, the Philippines is well positioned to sustain inclusive economic growth, generate new jobs, and improve the quality of life in both urban and rural communities. However, while the country has budgeted PHP 7.7 trillion (or roughly USD154 billion USD) for infrastructure development only PHP 78.5 billion (USD 1.5B) or 1.01% was allocated for energy infrastructure comprising mainly of hydropower rehabilitation projects of the National Power Corporation (NPC).

For the energy sector, investments tracked from 2013 onwards amounted to PHP1.3 trillion of which 98% is from the private sector. Of this number, 38% or PHP 504.3 billion are ear-marked for coal projects. The national government (NG-GAA) has a minimal share 1.3% that are intended for the installation of (diesel) generating sets for NPC-SPUG areas (PHP334.2 million), the NEA Sitio Electrification Program (PHP21.3 million) and Barangay Line Enhancement Program (PHP2.9 million) and the DOE Expanded Rural Electrification Program (PHP838.3 million). The Official Development Assistance (ODA) has a minimal share 0.2% including PHP4.9 billion Access to Sustainable Energy Program (ASEP) and Philippine Energy Efficiency and Conservation Project Philippine Energy Efficiency and Conservation Project (PHP 229 million).

These numbers indicate that the low carbon development goal of the Philippine NDC may not be achieved under the energy sector liberalization policy. Further, it sends a strong signal that the Philippine energy sector needs intervention or support from the international donor community including the GCF in terms of concessional funds for low carbon investments and technical support to strengthen the implementation of climate-friendly policies that are already in place, such as the Renewable Energy Act and various environmental laws.

Absence of alternative sources of financing

Given the massive infrastructure program and limited resources of the government, along with the energy sector liberalization policy, private sector participation is essential to the achievement of the National Renewable Energy Plan (NREP) goals of increasing the country's RE-based power generation capacity and thereby significantly reduce GHG emissions as envisaged in the Philippine NDC.

However, high-cost of commercial loans coupled with regulatory barriers (i.e., complex administrative and permitting processes and uncertainty of getting RE incentives and subsidies to recover the true cost of generation) have made the development of renewable mini-grids unattractive to the private sector. The availability of grant from GCF together with loan from LBP with lower interest rate and longer debt tenors will enable the intended beneficiary ECs reduce effective interest rate fast track off-grid electrification.

5. Country Ownership

As discussed earlier, the project is aligned with the national and sectoral frameworks, in particular, the goal of the Philippine NDC to achieve a climate resilient low-carbon development. Among the mitigation actions being considered for the NDC is the realization of the additional 15,000 MW renewable energy capacity target of the NREP by 2030. The project also meets other sub-criteria of country ownership such as the capacity of LANDBANK as the accredited entity and executing entity to deliver based upon its track record and experience in implementing similar projects (ODA funded projects, CDM).

Likewise, the stakeholder engagement process conducted so far has yielded positive feedback and enthusiasm in the project from various stakeholders and potential implementing partners, including national government agencies and provincial/local government units, private sector participants (DUs, QTPs/NPPs, business, NGOs/CSOs and academia. As noted in Sec. B.4, LANDBANK will continue to engage with various stakeholders (i.e. people's organization, academe, government agencies both national & local, NGOs, CSOs, local community including indigenous peoples, women and

¹² Philippines rated among 'most vulnerable' to climate change in new Moody's ranking May 15, 2018 | 10:03 pm, Business World
Melissa Luz T. Lopez, Senior Reporter

other vulnerable groups) thru public consultations, focus group discussions and one-to-one meetings, as appropriate, during the preparation of funding proposal and in the course of project implementation.

6. Efficiency and Effectiveness

According to Bloomberg New Energy Finance¹³, solar PV module prices (\$/Kw) have fallen by 94% during the last decade since 2008 while lithium-ion battery prices (\$/KWh) have also declined by 85% since 2010. Such quantum declines in unit costs are attributed to technology developments and rapid scale-up in annual manufacturing capacity (+415% for solar PV cells and +390% for Lithium-ion battery cells).

Likewise, Lazard's¹⁴ levelized cost of energy (LCOE) analysis indicate dramatic historical declines in the LCOE of wind and utility-scale solar PV accordingly due to material declines in the pricing of system components (e.g., panels, inverters, turbines, etc.) and improvements in efficiency, among other factors. The LCOE range of crystalline utility-scale solar PV, in particular, declined by an average of 88% from \$323/MWh - \$394/MWh in 2009 to \$40/MWh - \$46 MWh in 2019.

Lazard's analysis also shows that the availability and cost of capital have a higher impact on LCOE values for alternative energy technologies including solar PV compared to conventional technologies, i.e., with an increase in after tax internal rate of return (IRR) on the weighted average cost of capital from 5.4% to 8.4%, i.e., 56% increase corresponding to 44% increase in the cost of equity (from 9% to 13%) and 80% increase in the cost of debt from 5% to 9%), the LCOE of crystalline PV increases by 28% from \$36/MWh to \$46/MWh compared to only 13% increase in the LCOE of gas combined cycle (from \$53/MWh to \$60/MWh) and 20% increase in the LCOE of a gas peaker (from \$156/MWh to \$187/MWh). This underscores the importance of the concessionality of the funds from the GCF to enable RE technologies to be cost- competitive with GHG-intensive conventional energy sources.

Based on the experience in Mararison Island, a one-time grant for the storage from GCF funds will make the project sustainable and will be a catalyst in the development of renewable energy in off-grid areas with a public-private partnership model. The cashflows and repayment schedules will depend on the charging model / cross-subsidy blended pricing adopted by the EC. The continued cost-competitiveness of solar PV against diesel generation, the project is expected to be financially and economically viable in the long run, reducing the need for subsidies to close the gap between the true cost of generation and socially acceptable tariffs.

The lower LCOE of RETs will also result in lower marginal abatement costs (USD per ton CO₂e avoided or reduced) relative to the baseline diesel generation in off-grid areas without subsidies.

The project has a strong potential for co-financing from "green" project developers themselves and financial institutions including LANDBANK, with the holistic approach to address systemic barriers and reduce costs and risks, contribute to reducing geographical and gender inequalities and promote a paradigm shift towards low-emission development. Other potential sources of co-financing are multilateral and bilateral funding and development agencies and programs (e.g., ADB, WB, EU-ASEP, UNIDO, KfW, NAMA Facility, etc) especially for the nationwide scale-up in the next phase of the project.

B.4. Engagement among the NDA, AE, and/or other relevant stakeholders in the country (max ½ page)

This project is being structured with strong involvement of the CCC as the National Designated Authority (NDA) and engagement of stakeholders and potential project partners. Consultation meetings have been conducted with the following: (a) national government agencies, in particular, the DOE, NEA and NPC- SPUG; (b) Distribution Utilities (DUs) in various target sites; (c) EC and DU-owned corporations and public- private partnerships, including AIEC MGEC and AIEC-ILAW JV, (d) private sector, i.e. OREEi and ILAW ; (d) the Local Government Units (LGUs) of target sites, and (e) other NGOs/academe, involved in the project. All of these stakeholders have indicated an interest to support the mini-grid project concept.

With the support of the NDA, LANDBANK will continue to engage these stakeholders through public consultations, focus group discussions and one-to-one meetings, as appropriate, in developing the project structure, i.e., the business models for the investment component, as well as the technical assistance and capacity building components.

¹³ Kurosaki, M. "Decarbonization on Supply & Demand Sides. G20 CSWG Session 6: The Role of Renewable Energy in Addressing Climate Change." Bloomberg New Energy Finance. Feb. 15, 2019. <https://www.mofa.go.jp>

¹⁴ Lazard's levelized cost of energy analysis, ver. 12. <https://www.lazard.com/perspective/levelized-cost-of-energy-and-levelized-cost-of-storage-2018/>

C. Indicative Financing/Cost Information (max. 3 pages)

C.1. Financing by components (max ½ page)

Component/Output	Indicative cost (USD)	GCF financing		Co-financing		
		Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
Component 1: Technical assistance for the strengthening of the institutional and regulatory framework for the promotion of renewable energy in off-grid areas.	100,000	100,000.00	Grant	-	-	-
Component 2: Financing Investments in mini-grid infrastructure projects	23,474,411	8,545,672 5,356,928	Grant Loan	4,814,882 5,356,928	Equity Loan	EC LBP
Component 3: Capacity building and technical support to the public and private sectors to manage and implement renewable mini-grids.	900,000	900,000	Grant		-	-
Project Activities Cost	25,074,411	14,902,600		10,171,811		
Project Management (5%)	1,253,721	1,253,721	Grant			
Total Project Cost	26,328,131	16,156,321				
Accredited Entity Fees (7%)	1,842,969	1,842,969	Grant	10,171,811		
Indicative total cost (USD)	28,171,101	17,999,290		10,171,811		

C.2. Justification of GCF funding request (max. 1 page)

The provision of basic electricity services is part of the social agenda of the government, especially to marginalized communities, as indicated by government interventions in electrification programs and subsidies for missionary electrification. However, due to limited government resources, budget for missionary electrification is constrained resulting in suppressed demand for electricity and large disparity in electrification levels between the on-grid consumers and off-grid.

Subsidies not only lead to inefficiency but are also borne by other consumers, adding burden to tariffs that are already among the highest in Asia and fuelling inflation of the price of other goods and services. Furthermore, while the government is committed to its NDC goal of climate resilient low carbon development and energy sector liberalization policy, investors are reluctant to invest in relatively nascent RE technologies for off-grid areas due to real and anticipated regulatory and market risks.

The availability of GCF grant for the storage and loan from Land Bank with lower interest rate and longer term will thus help overcome the barriers to investments and help the government achieve its climate and social agenda in line with the SDG goals, i.e., access to clean energy, resilient communities, etc.

Despite its importance in curbing climate change, barriers to entry such as high investment cost, lack of technical capability in operating RETs and regulatory complexity and uncertainty limit the adoption of RETs by investors in off-grid areas. Additionally, financing institutions are cautious in providing loans to borrowers because of the risks involved in such projects. Financing may be available but at higher interest rates to cover the risks. With this project, such barriers

will be addressed with the support from GCF funds given the concessionality in terms of lower interest rate, longer loan tenor and the grant element. The concessionality of the GCF funds will redound to lower interest rates to the intended recipients and ultimately lower electricity costs especially for marginalized communities in the off-grid areas.

The GCF's contribution will facilitate the enhancement of the policy and regulatory framework, thus, creating an enabling environment for private sector investment in the development of renewable mini-grids in off-grid areas (hybridization or stand alone) well beyond its implementation period. Also, the GCF's contribution will help mitigate the perceived risks associated with RE projects, especially in off-grid areas, and enable DUs, IPPs, NPPs, QTPs companies to access financing from local and international sources. It will also enable the delivery of off-grid power at a reasonable cost to the end consumer until market reaches maturity. By providing adequate training to stakeholders in designing/sizing, evaluating and costing of renewable energy integration in off-grid areas coupled with capacity building in project supervision and management as well as operations and maintenance, the project will ensure long term sustainability of the investment.

C.3. Sustainability and replicability of the project (exit strategy) (max. 1 page)

The Project is considered sustainable and replicable for implementation, especially in the franchise areas of the 42 ECs that are members of AIEC.

The key financial and operational risks of the project have been assessed and mitigation measures have been identified to ensure that risks will be managed:

Type of Risk	Risks	Level of Risk	Proposed Mitigation Measures
Technical Risk	The choice of RE technology to be implemented might not be the best fit to address the actual electricity needs of the island. Unsatisfactory performance of the plant and equipment damage	Low	There are two pilots (Cobrador, Romblon 2016 and Mararison, Culasi 2019) that demonstrate solar PV delivers best value among RE alternatives in the Philippines. Further, each site is supported by NASA 10-year irradiation study to support Hybrid Optimization of Multiple Energy Resources (HOMER) design prior to the submission of the Funding Proposal. EPC Performance Warranty Manufacturer Performance Warranties
	Improper operation and maintenance resulting to early breakdown of equipment or shorter useful life of the equipment.	Medium	This risk can be mitigated by a well-designed capacity building program that forms Component 3 of the Concept Note. Capacity building and technical support are provided to strengthen the capacities of the actors in operating and maintaining the equipment. Operating and Maintenance will be performed by organic EC personnel to ensure the continuous operation of the solar facility.
	Inadequate after-sales service	Low	Sign After-Sales Service Agreement with EPC for remote online system monitoring and preventive maintenance.
Financial Risk	No qualified borrower to contribute the equity portion of the project	High	AIEC-ILAW will pre-qualify ECs and projects for final evaluation and approval of LBP and its Lending branches nationwide. The pilot will consider first tier or AAA rated EC among AIEC's 42 members.
	Foreign exchange rate fluctuations which may result to an increase or decrease in the total cost of the project	High	Secure Foreign Exchange Risk Cover (FXRC) from the DOF
	Financial capacity to sustain the project	High	The financial package is concessional, taking into consideration the financial capacity of the borrower.
	Unattractive financial package which may	High	

	result to no taker or borrower to take on the project		
Regulatory Risk	Emerging/new policy and regulations that may affect operations i.e., phase-out of subsidies	Medium	Participate in public consultations among stakeholders or in-depth studies that government agencies concerned conduct before crafting or implementing new policies and regulations. Model proposes a one-time grant with no recurring subsidy.

LANDBANK as the accredited entity together with pre-selected co-executing entities, AIEC-ILAW and OREEi that will carry out this project will apply the experiences it has gained in implementing various Official Development Assistance (ODA) projects (loans or grants) from multilateral and bilateral funding institutions such as Japan International Cooperation Agency (JICA); The World Bank, Asian Development Bank (ADB) and Kreditanstalt fur Wiederaufbau (KfW). This includes applying the results management, monitoring and verification concepts and approaches learned as may be applicable to this mini-grid project.

D. Supporting documents submitted (OPTIONAL)

- Map indicating the location of the project/programme
- Diagram of the theory of change
- Economic and financial model with key assumptions and potential stressed scenarios
- Pre-feasibility study
- Evaluation report of previous project
- Results of environmental and social risk screening

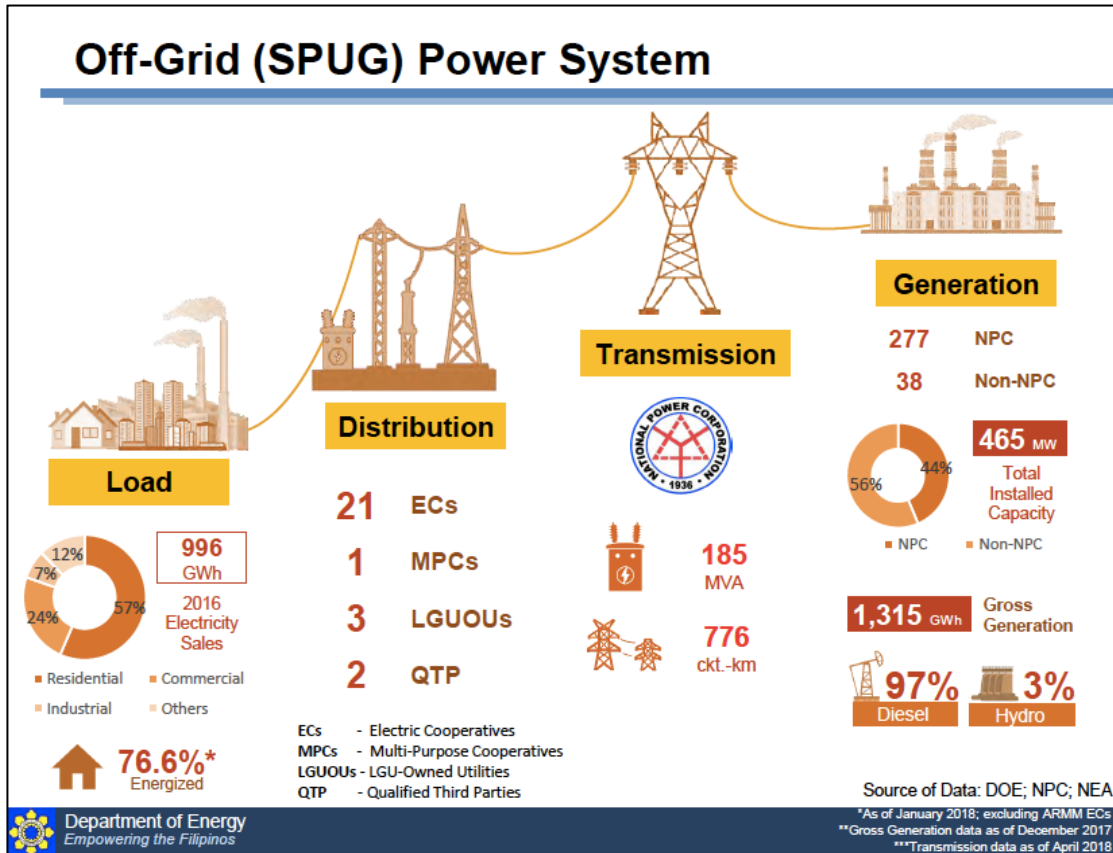
Self-awareness check boxes

Are you aware that the full Funding Proposal and Annexes will require these documents? Yes No

- Feasibility Study
- Environmental and social impact assessment or environmental and social management framework
- Stakeholder consultations at national and project level implementation including with indigenous people if relevant
- Gender assessment and action plan
- Operations and maintenance plan if relevant
- Loan or grant operation manual as appropriate
- Co-financing commitment letters

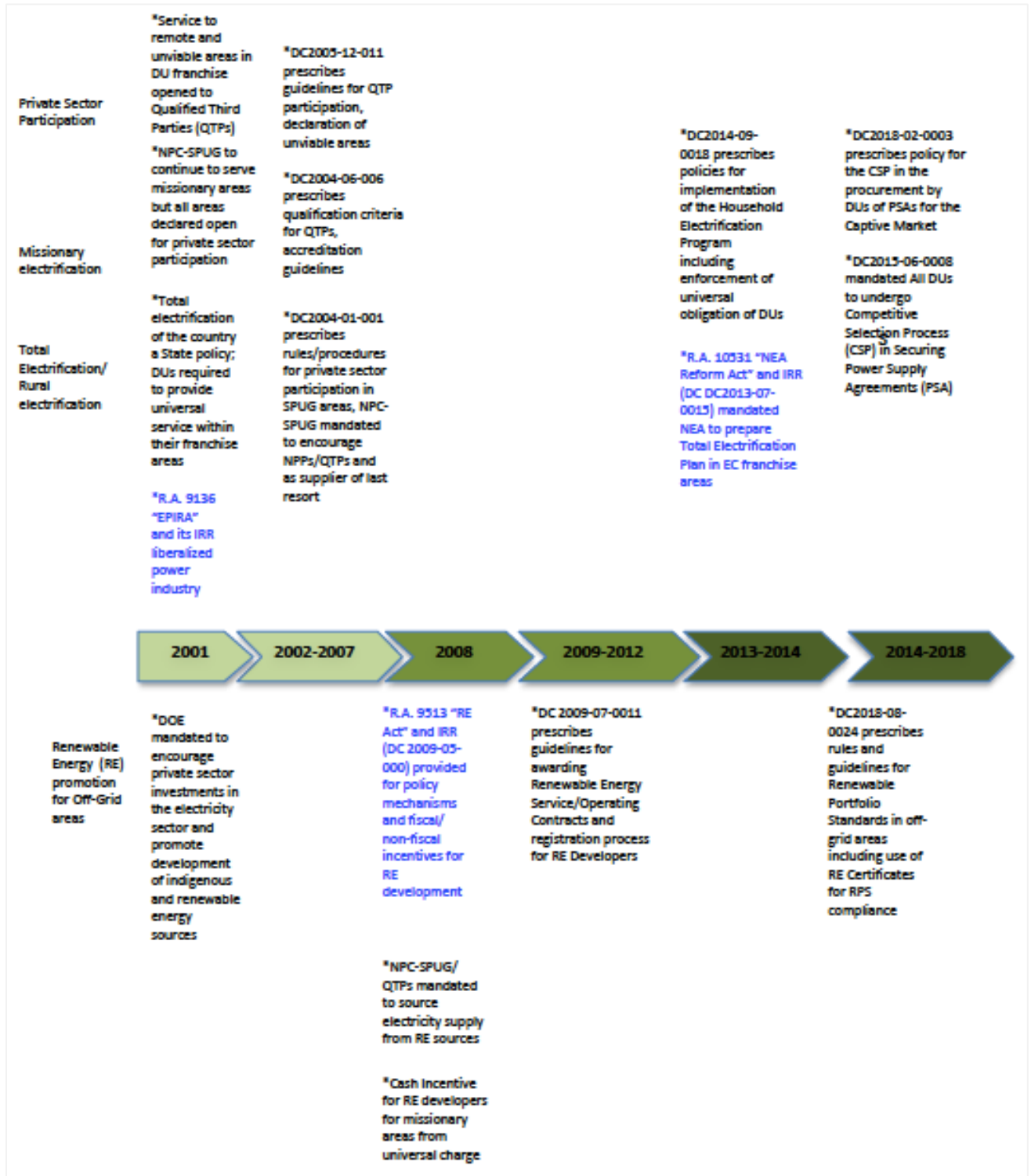
Are you aware that a funding proposal from an accredited entity without a signed AMA will be reviewed but not sent to the Board for consideration? Yes No

ANNEX I - Philippine Off-Grid Power System



Source: DOE (2018); Presentation of DOE Undersecretary F.W. Fuentesbella. Iloilo City, Oct. 2018.

ANNEX II.1- Evolution of Policy and Regulatory Framework for Renewable Energy Development in Off-Grid Areas



Annex II.2 - Policy and Regulatory Framework for Renewable Energy Development for Off-Grid Areas

Policy/Regulations/Guidelines				Legal Basis		
Date issued	Title	Subject	Key Provisions	R. A. 9136 - "EPIRA" of 2001 and its IRR	R. A. 9513 - RE Act of 2008 and its IRR	
09/14/2018	DC2018-08-0024: "Promulgating the Rules and Guidelines Governing the Establishment of the Renewable Portfolio Standards for Off-Grid Areas" (RPS Off-grid Rules)	Minimum annual RPS requirement	Sec. 7. All Mandated Participants shall be required to generate and/or procure, supply and subsequently maintain a minimum percentage of RE share in their energy portfolio to meet the minimum RE requirement in their area, which shall be consistent with the Optimal Supply Mix prescribed in the Missionary Electrification Development Plan (MEDP)	EPIRA: Sec. 2., Sec. 37(e) (i)	RE Act, Sec.12, Chap IV; IRR of RE Act, Part II, Rule 4, Sec. 12	
		Capacity building of the Mandated Participants	Sec. 8©. The DOE in collaboration with the NEA and NPC, shall develop a system to support the capacity building of Mandated Participants, including but not limited to (i) the development or the use of a tool or any internationally accepted software that may be used by the Mandated Participants in the planning and implementation of their respective Minimum RPS Compliance Plan that shall be submitted to the DOE			
		Mandated participants, CSP	Sec. 11. The following are mandated to comply with the RPS Off-grid Rules: (a) generation companies- NPC-SPUG, NPPs and QTPs; and (b) DUs and local government-operated electric systems with respect to their embedded generation facilities. The DUs shall facilitate the conduct of the CSP corresponding to the minimum RE component of their respective franchise areas. However, Mandated Participants have the option to construct their own RE facilities or contract its Minimum RE requirement			
		RE certificates	Sec. 16(d). Purchased or acquired Renewable Energy Certificates (RECs) from the Renewable Energy Market (REM) can be used for compliance with the RPS.			
		Rationalization of UCME subsidy	Sec. 13(b). In procuring RE requirements, the most advantageous RE generation that will redound to a higher net reduction in the UC-ME requirement of the Small Grids or Off-Grid Areas, inclusive of the cash incentive, if availed, shall be awarded the pertinent PSA.			RE Act, Sec. 15(h)
		Information, Education and Communication (IEC) Activities	Sec. 24. The DOE shall develop a comprehensive IEC campaign that is designed to increase the public awareness and appreciation of the RPS Off-Grid Rules and the RE industry, in general			IRR of the RE Act, Sec. 31, Rule 10
02/09/2018	DC2018-02-0003 "Adopting and Prescribing the Policy for the Competitive Selection Process in the Procurement by the Distribution Utilities of Power Supply Agreement for the Captive Market"	Competitive Selection Process (CSP)- coverage, exemptions	Sec. 2. All PSAs shall be procured through CSP. However, instances that will warrant a Certificate of Exemption from the DOE on the conduct of CSP, include: (a) any generation project owned by the DU funded by grants or donations, provided that the share of DU's internally generated funds shall not exceed 30% of total project cost; (b) negotiated procurement of emergency power supply; (c) provision of power supply by any mandated GOCCs for off-grid areas prior to, and until the entry of NPPs; and (d) supply by PSALM from undisposed generating assets and IPP contracts	EPIRA: Sec. 23, Sec. 43, Sec. 45(b)		
		Compliance with RE Law	Sec. 10. DUs and Retail Electricity Supplier (RES) shall comply with the DOE Dept. Circulars to be issued pertaining to non-fiscal incentives			RE Act, Chap IV, Sec.12,

Annex II.2 continued

Policy/Regulations/Guidelines				Legal Basis	
Date issued	Title	Subject	Key Provisions	R. A. 9136 - "EPIRA" of 2001 and its IRR	R. A. 9513 - RE Act of 2008 and its IRR
06/11/2015	DC2015-06-0008 "Mandating All Distribution Utilities to Undergo Competitive Selection Process (CSP) in Securing Power Supply Agreements (PSA)"	CSPs, Application and Coverage,	Sec. 2. The Circular shall apply to any entity that owns, operates, or controls one or more distribution systems in the main grid and off-grid areas, such as but not limited to (a) Electric Cooperatives (ECs), (b) Private Investor-Owned Utilities (PIOUs), (c) Local Government Unit Owned-and-Operated Distribution Systems/Utility (LGUOUS); (d) Multi-Purpose Cooperatives duly authorized to operate electric power systems; (e) entities duly authorized to operate within economic zones; and (f) other duly authorized entities engaged in the distribution of electricity	EPIRA: Sec. 23, Sec. 43, Sec. 45(b)	
		CSP conducted through Third Party	Sec. 3. All DUs shall procure PSAs only through CSP conducted through a Third Party duly recognized by the ERC and the DOE, and also by NEA in the case of ECs.		
		NEA Assistance to ECs	Sec. 11.2. For ECs with limited capability to undertake CSP, NEA shall provide the necessary assistance and resources including, but not limited to, the mobilization of component manpower, which shall be at no expense to the ECs.		
9/29/2014	DC2014-09-0018 "Prescribing the Policies for the Implementation of the Household Electrification Program and Creating the Household Unified Strategic Electrification (HOUSE) Team for the Purpose of Achieving the Country's Total Electrification"	Policies and strategies to meet Total HH Electrification target	Sec. 1. In meeting the 90% HH electrification target in the HEDP, the DOE shall pursue the following policies and strategies: a) Provision of basic electricity service as a social agenda; (b) Enforcing the universal service obligation of the franchised DUs; and (c) Ensuring security, reliability, quality and affordability of electricity services; (d) Preference for RE sources and technologies wherever applicable; (e) Sufficient and well-targeted provision of government grants and subsidies; and (f) Linking electrification with other development programs as government strategy for inclusive growth.	EPIRA: Sec. 3(a), Sec. 23	
		HH Electrification Options and Plans; Capacity building for DUs	Sec. 3. All DUs and other project proponents may adopt both grid and off-grid electrification options as well as centralized, mini-grid and even stand-alone systems in pursuing household electrification in their franchise or service areas. Each DU shall develop a long-term total electrification masterplan consistent with their respective individual Distribution Development Plans. The DOE in coordination with NEA, NPC and other stakeholders shall implement a national capacity building program to capacitate all DUs in the formulation of holistic, least-cost and household electrification plans and projects in their respective franchise areas.		
		Preference for RE in off-grid areas,	Sec. 1 (d). Whenever suitable, the use of commercially-viable renewable energy sources and technologies especially in off-grid and unviable areas shall be the preferred electrification solution over conventional systems utilizing imported petroleum products.		EPIRA, Sec. 37(e)(i)

Annex II.2 continued

Policy/Regulations/Guidelines				Legal Basis	
Date issued	Title	Subject	Key Provisions	R. A. 9136 - "EPIRA" of 2001 and its IRR	R. A. 9513 - RE Act of 2008 and its IRR
05/07/2013	R.A. No. 10531 "National Electrification Administration Reform Act of 2013" (amended Presidential Decree 269)	Total Electrification policies; universal obligation of ECs	SEC. 2. It is declared the policy of the State to: (a) promote the sustainable development of the rural areas through rural electrification; (b) empower and strengthen the NEA to pursue the electrification program and bring electricity, through the electric cooperatives, to the countryside even in missionary or economically unviable areas; and (c) empower and enable electric cooperatives to cope with the changes brought about by the restructuring of the electric power industry	EPIRA, Sec. 58, Sec. 31	
		NEA Mandate - Missionary electrification	SEC. 4. (h) Pursue the total electrification of the country through the electric cooperatives by way of enhancing distribution development and, in case of missionary areas, shall be done in coordination with the (NPC-SPUG which shall be responsible for the generation and transmission requirements, as necessary;		
		- Institutional, technical and financial support to ECs	Sec. 4(j) ensure the economic and financial viability and operation of all ECs; (l) develop, set and enforce institutional and governance standards for the efficient operation of electric cooperatives; (n) serve as guarantor to qualified ECs in their transactions with various parties such as, but not limited to, co-signing in power supply contracts;(o) grant loans to electric cooperatives, for the construction or acquisition, operation and maintenance of sub-transmission and distribution facilities and all related properties, equipment, etc. for the purpose of supplying area coverage service; (p) subject to the prior approval and/or opinion of the Monetary Board, borrow funds from any source, private or government, foreign or domestic, and secure the lenders thereof by pledging, sharing or subordinating one or more of the NEA's own loan securities;		
		Additional powers of ECs	Sec. 16(j) To construct, acquire, own, operate and maintain electric sub-transmission and distribution lines. (j-1) To construct, acquire, own, operate and maintain generating facilities within its franchise area. In pursuance thereof, where an electric cooperative participates in a bid on an existing NPC-SPUG generating facility, its qualified bid shall be given preference in case of a tie; Provided, however, That in cases where there is no other qualified bidder, the lone bid shall remain as valid basis for the determination of the final award subject to the following conditions: "(a) bid offer is not lower than the valuation of the assets using Commission on Audit (COA) rules and regulations; "(b) electric cooperative is prepared to fully take over the generation function of the area from the NPC-SPUG; and "(c) electric cooperative submits its graduation program from the Universal Charge for Missionary Electrification (UC-ME) subsidy.		
01/01/2009	DC2009-07-0011 "Guidelines Governing a Transparent and Competitive System of Awarding Renewable Energy Service/ Operating Contracts and Providing For the Registration Process of Renewable Energy Developers"	Nature of RE Contract, Registration of RE Developer	Sec. 4. An RE Contract is a service agreement between the Government and an RE Developer over an appropriate period as determined by the DOE in which the RE Developer has the exclusive right to explore and develop a particular RE area.		RE Act IRR, Part IV, RULE 6, Sec, 19 C.
			Sec. 14 The DOE shall issue the Certification of Registration to the RE Developer immediately upon the effectivity of the RE contract whether during Pre-Development or Development/Commercial Stage		

Annex II.2 continued

Policy/Regulations/Guidelines				Legal Basis	
Date issued	Title	Subject	Key Provisions	R. A. 9136 - "EPIRA" of 2001 and its IRR	R. A. 9513 - RE Act of 2008 and its IRR
12/12/2005	DC2005-12-011 "Prescribing The Guidelines For Participation Of Qualified Third Parties (QTPS) For Provision Of Electric Service In Remote And Unviable Areas"	QTPs, policies, preference for RE	Sec. 2. (a) All areas identified by the DUs to be remote and unviable shall be declared open for QTP participation by the DOE in consultation with NEA; (b). The participation as QTP shall be open to any party, including but not limited to, private firms, LGUs, cooperatives, NGOs, generation companies or their subsidiaries or subsidiaries of DUs. (c) All QTPs shall adopt least-cost and most efficient technology options in serving unviable areas. In determining the QTP, preference shall be given to persons or entities that can offer the least-cost technologies utilizing RE resources.	EPIRA: Sec. 59; Sec. 37 (e)(i)	
		Declaration of unviable areas	Sec. 5(a). The DU shall classify the unelectrified areas within its franchise area between viable and unviable areas and comply with the submission of the list of areas to be waived through the DOE-EPIMB. (b) NEA shall submit evaluation criteria to the DOE and verify basis of selection of unviable areas nominated by DUs as part of the QTP program.	EPIRA-IRR: RULE 13, RULE 14. Sec. 3	
		Rates charged by QTPs, entitlement to UCME subsidy	Sec. 6. (a) The QTP shall be deemed to be performing missionary electrification service on behalf of NPC-SPUG with respect to the QTP service area. (b) The DOE through NPC-SPUG consistent with its MEDP, shall petition the ERC to grant a UC-ME subsidy fund for QTPs.	EPIRA, Sec. 70	
6/18/2004	2004-06-006 "Prescribing The Qualification Criteria For The Qualified Third Party"	QTPs - accreditation principles	Sec. 3. (a) Any Person, who intends to serve a Waived Area, may apply with the DOE through the EPIMB for accreditation as a QTP. (b) DOE may impose upon any Person limitations of its accreditation as a QTP, including limitations as to the size of an area a QTP is allowed to apply to serve.	EPIRA: Sec. 59; EPIRA-IRR: Rule 13; Rule 14, Sec. 1, Sec. 2	
		Eligibility Criteria for QTPs	Sec. 4. (a) General; (b) Limitation on Accreditation, (c) Technical Criteria, (d) Financial Criteria		
		Preference for RE	Sec. 4. DOE will encourage local enterprises and organizations with expertise in renewable technologies to operate as QTPs.	EPIRA-IRR: RULE 14. Sec. 4.	
5/28/2004	DC 2004-05-005 "Streamlining and Rationalizing the Grant of Subsidies in the Electrification of Missionary Areas Using Solar Photovoltaic Systems"	Beneficiaries of the Solar PV Subsidy	Section 4. Consumers within an unenergized, remote, dispersed and unviable area, suitable for solar PV systems shall be eligible beneficiaries of the solar PV subsidy; provided that priority shall be given to consumers in areas identified in the MEDP, and/or unenergized areas that have potential market for solar PV systems.	EPIRA-IRR, RULE 13	
2004	DC 2004-02-002 "Prescribing The Guidelines For The Formulation Of A Five-Year Distribution Development Plan"	Contents of the DDP	The DDP shall contain the following detailed information: (a) long-term and immediate objectives of the utility to meet their obligations; (b) strategies and/or approaches that will guide the DUs in their operation; (c) technical and economic analyses in demand forecast, supply expansion plan, and expansion of the distribution system; (d) power supply contract/s or agreement/s entered into by the DUs with NPC and other generation companies; and (e) list of barangays within the DUs' franchise area scheduled for energization during the five-year planning period, as well as those barangays declared by DUs as unviable and unable to provide electricity service within the next three (3) years.	EPIRA-IRR, RULE 7, Sec. 4 (p)	

Annex II.2 continued

Policy/Regulations/Guidelines				Legal Basis	
Date issued	Title	Subject	Key Provisions	R. A. 9136 - "EPIRA" of 2001 and its IRR	R. A. 9513 - RE Act of 2008 and its IRR
01/26/2004	DC2004-01-001 "Prescribing The Rules And Procedures For Private Sector Participation In Existing NPC-SPUG Areas"	Policies - Private sector participation in NPC-SPUG Areas	Sec. 2 (b) All existing NPC-SPUG areas are declared open for private sector participation, i.e., "the take over of the supply of electricity to ay existing NPC-SPUG areas, either through outright purchase or lease of existing NPC-SPUG assets, and/or installation of new power generating facilities including associated power delivery systems."	EPIRA-IRR, RULE 13	
		New Power Providers (NPPs), competitive process for selection	Sec. 2(e). DUs currently sourcing power supply from NPC-SPUG, wholly or partly, are encouraged to seek NPPs, which shall be selected based on competitive bidding with the view to minimize power purchase cost of the DU Sec. 2(b) The competitive process shall be designed to ensure that prospective NPPs intending to participate in NPC-SPUG privatization program possess suitable level of financial and technical capacity, and to give due consideration to achieving the lowest long-term cost of power.		
		Procedure for offering NPC-SPUG areas	Sec. 2(d). To ensure an orderly and well-managed process, DUs operating in NPC-SPUG areas shall be grouped into 'waves' based on the suitability of the area for supply by an NPP. The first wave shall include areas deemed most attractive for NPPs.		
		Additional functions of NPC-SPUG - petition ERC for subsidy to NPPs, support to DUs, NPPs and QTPs	Sec. 5. In addition to its existing functions, NPC SPUG shall (a) petition ERC on the proposed regulatory regime aimed at encouraging private sector participation in existing NPC-SPUG areas, in particular, for ERC to determine the Missionary Electrification subsidy to be provided to the NPP serving the area, and the Socially Acceptable Generation Rate (SAGR) consistent with that subsidy; (b) assist DUs operating in existing NPC-SPUG areas to enter PSAs with NPPs; (c) Ensure that new Missionary Areas are served effectively and efficiently by QTPs, wherever possible, and by NPC-SPUG directly in the event that no QTPs are willing to serve the area.		

Annex III - GHG Mitigation Potential of the Mini-Grid Project - Detailed Calculations and Assumptions

The contribution of the proposed mini-grid project to the GCF result area of reducing GHG emissions from energy access and generation is calculated using a methodology from the Clean Development Mechanism (CDM), AMS-I.F “Small-scale Methodology- Renewable electricity generation for captive use and mini-grid”.¹⁵ This CDM methodology is considered applicable to the proposed project, which will supply electricity to a mini grid system (i.e., with total installed generating capacities not exceeding 15 MW) where in the baseline all generators use exclusively fuel oil and/or diesel fuel. Applying this methodology and other assumptions, following is a step-by-step calculation of the projected emission reductions from the project.

1. Baseline emissions

For a mini-grid system where all generators use exclusively fuel oil and/or diesel fuel, the baseline emissions is the annual electricity generated by the renewable energy unit times an emission factor for a modern diesel generating unit of the relevant capacity operating at optimal load as given in the methodology.

$$BE_y = EG_{BL,y} \times EF_{CO_2,y}$$

Where:

BE_y = Baseline emissions in year y (t CO₂)

$EG_{BL,y}$ = Quantity of net electricity displaced as a result of the implementation of the CDM project activity in year y (MWh)

$EF_{CO_2,y}$ = Emission factor (t CO₂/MWh)

Calculation of the Quantity of net electricity displaced, $EG_{BL,y}$

$$EG_{BL,y} = \text{Capacity (MW)} \times 8760 \text{ hours/year} \times \text{capacity factor (\%)}$$

Capacity factor is assumed as 17%, following the value used for the 1 MW Camotes Solar PV project for Poro, Cebu in the DOE/UNDP DREAMS Project

Total $EG_{BL,y}$ for the on-grid / off-grid bundle with 6 MW on-grid solar PV project for and 1.8 MW for off-grid micro-grid solar plant is thus calculated as follows:

$$EG_{BL,y} = (6 \text{ MW} + 1.8 \text{ MW}) \times 8760 \text{ hours/year} \times 17\% = 11,615.76 \text{ MWh}$$

Emission Factor, $EF_{CO_2,y}$

The AMS I.F methodology provides a default value for diesel mini-grids with >200 KW capacity, which is equal to 0.8 kg CO₂e/kWh or 0.8 tons CO₂e/MWh

Given the above assumptions, Baseline Emissions are thus calculated as follows:

$$BE_y = EG_{BL,y} \times EF_{CO_2,y} = 11,615.76 \text{ MWh} \times 0.8 \text{ tons CO}_2\text{e/MWh} = 9,292.60 \text{ tCO}_2\text{e}$$

2. Emission Reductions

Emission reductions are calculated as the difference between the baseline emissions and the sum of the project emissions and leakage emissions, if any.

¹⁵ The full description and instructions for the application of the methodology is available at the CDM website: <https://cdm.unfccc.int/methodologies/DB/9KJWQ1G0WEG6LKHX21MLPS8BQR7242>

$$ER_y = BE_y - PE_y - LE_y$$

Where:

- ER_y = Emission reductions in year y (t CO₂e/y)
- BE_y = Baseline Emissions in year y (t CO₂/y)
- PE_y = Project emissions in year y (t CO₂/y)
- LE_y = Leakage emissions in year y (t CO₂/y)

For most renewable energy projects, project emission (PE_y) is typically 0. Leakage may also assumed to be zero (the methodology only provides guidance for leakage calculation for biomass). As such, the emission reductions will be equal to the baseline emissions.

$$ER_y = BE_y = 9,292.60 \text{ tCO}_2\text{e}$$

Assuming the lifetime of the facility to be 20 years¹⁶, the total emission reduction to be generated by the project is estimated to be 185,852 tCO₂e.

¹⁶ The DOE/UNDP DREAMS Project assumes a facility lifetime of 10 years for the Poro solar PV; however, other sources indicate 30 years (e.g., Lazard's levelized cost of energy analysis, available at: <https://www.lazard.com/perspective/levelized-cost-of-energy-and-levelized-cost-of-storage-2018/>)

Annex IV: AIEC Project & EC Selection Criteria For Landbank's GCF Financing Facility

The Association of Isolated Electric Cooperatives (AIEC) is an association created in 2007-08 whose Electric Cooperative members are not connected to the national grid of the Philippines or which have significant areas which are served by NPC-SPUG, the government owned generation company responsible for providing power generation service in areas where no other option exists. AIEC created a subsidiary corporation, AIEC Missionary Green Energy (AIEC MGEC) in order to assist its member electric cooperatives ("EC's") to enter the generation business, focused on the twin goals of 1) empowering the participating EC's to fulfill their total electrification and access to energy mandate enshrined in the EPIRA; and 2) accelerating access to and deployment of renewable energy-based power generation/supply in order to reduce the reliance on fossil fuels and enhance EC sustainability of electrical service.

In 2017-19, AIEC, through its subsidiary AIEC MGEC and joint venture/technical partners ORE and ILAW, developed an initial pipeline of EC-owned projects based on the pilot projects implemented by several of its leading member EC's, including ROMELCO's Cobrador Island Solar Hybrid Island Microgrid and ANTECO's Malalison Solar Hybrid Island Microgrid using Prepayment Metering. The initial projects and EC's were selected based on electrification priority, capacity of the EC, and investment into AIEC MGEC.

Project Longlist Selection Team: Landbank, DOE (Office of Renewable Energy), NEA (ORED), AIEC/AIEC-ILAW (incl. Major Shareholders of AIEC MGEC such as REFC/REEC), OREEi

Project Shortlist and Final Selection Board: Landbank, NEA ORED, AIEC-ILAW, OREEi

Project Identification and Selection Process: The Projects selected for funding will be selected in two phases:

- Preliminary Submission of Projects During Participation in Initial Program Introduction and EC Proposal Submission: Upon GCF approval and finalization of all necessary project agreements between Landbank and GCF, the Project Management Team will organize 3-4 region Project Introduction and Information Seminars, to be presented in areas closer to the potential EC's (Manila, Cebu, CDO/Zamboanga City/Davao/Butuan). These seminars will introduce the program, lay out the financing to be offered, and present the application procedures and selection criteria for the program. Attending EC's will then be asked to decide if they wish to participate, and if so, will prepare a Participation Proposal to the Project Management Office.

This Participation proposal will include a statement and rationale as to why the EC wishes to participate and will include a list and brief description for any projects they would like to be considered. This proposal should include any resolutions or other supporting documents or project studies/assessments which have been completed for the subject projects, sufficient to demonstrate the commitment and qualifications of the EC and its projects for the program. Proposals will be reviewed by the Project Management Initial Project Evaluation team consisting of Landbank, NEA, DOE, AIEC (from a representative group including Member ECs, Shareholders in AIEC MGEC, and key participants such as Rural Electrification Finance Corp./REEC), AIEC-ILAW, OREEi.

This evaluation team will produce a shortlist of projects which will then be subjected to final evaluation. The shortlist will include at least 24 off-grid projects and 6 on-grid, but could include as many as 50 potential sites. In addition, the shortlisted group of projects should include one project in at least 15 different EC's before a 2nd project is awarded to one EC.

- Final Selection/Recommendation: Projects which pass the initial evaluation process will be further assessed in the field by the Project Management Development and Technical Teams. These will be led by AIEC-ILAW and OREEi and will include meetings at the ECs, detailed project surveys/studies, Community meetings and confirmation of interest in and acceptability of the projects. AIEC-ILAW and OREEi will undertake detailed project technical assessments, with OREEi finalizing the project configurations and costing. Project will be submitted to the EC Boards for review and approval before being submitted to DOE and NEA for statements of no objection and endorsement and then to ERC for Rate Application.

Selection of Projects: Interested EC's will apply to the Project Management Team for participation in the Landbank GCF financing program. The EC will submit a statement of its interest and provide a list of candidate projects which it would like to be considered for the program. The Program Management Team will apply two levels of assessment in choosing projects: the qualifications of the EC, and the qualifications of particular projects to be implemented. For this application to GCF, the EC and Project Selection Criteria will be applied to the approximately 30 projects (24 off-grid, 6 on-grid) as follows:

EC Selection Criteria:

- Membership/Participation in AIEC and Ownership/Shareholding in AIEC MGEC and/or REFC
- Non-AIEC EC's will also be considered, but AIEC EC's will be given preference
- NEA EC Rating - Prefer B or Better
- Experience in Non-Core Revenue Projects
- Financial Capacity to Invest/Participate in Financing
- Institutional Capacity to Provide In-Kind Support for Project, incl. Capacity of the EC
- Management Capabilities
- Experience or Training of Staff in Power Generation, RE, or applicable skills
- Financial Capacity to invest 20% Co-Funding for Proposed Projects
- Demonstrated experience in SMART Grid or RE Technologies
- Assets (T&D Infrastructure, Land, Donated Gensets, etc.)
- NEA Approval of Participation in Program
- Completed and Update PPDP (Distribution Development Plan) per DOE Standards

Project Selection Criteria:

- Areas included in Distribution Development Plan / Electricity Distribution Plan for 2020 onwards
- Unelectrified or Underserved areas (4-6 hours daily power) managed by EC or LGU and not NPC-SPUG area (no subsidy) preferably with organized local association and potential for high potential for tourism / homestay or other productive use of energy like maternity clinic or cold chain where women can benefit (this is a GCF criteria)
- EC Willingness to commit projects confirmed by a Board Resolution
- Completion of FS, Pre-FS or other Site Assessment Study or Survey
- LGU/Community demonstration of interest in Project (SB Resolution/Letter)
- No Objection to Project Inclusion by DOE/NEA
- Location of the site and Accessibility by visiting parties (as this will be an expanded pilot / showcase accessibility important)
- Size of the target population to be impacted by project(s)
- Number of HH to be connected to grid where prepaid system can result to 100% inclusion (larger size is better to maximize HH beneficiaries)
- Potential of having a cluster of projects (areas currently with zero or minimal electricity service) within a single EC

GCF approves. Landbank approves. Need to build project pipeline, but each project will be approved for financing and participation in the program at the local level. But, at the local level the LBP staff will want to know that projects on which they will do due diligence are going to be approved. So therefore some sort of project triage is necessary.

So, first EC's will get briefed on the facility. LBP will offer 24 projects + 6 on-grid PV to be financed under the facility. The target market will begin with AIEC ECs, but won't be limited to AIECs. Program marketing will begin by July 2021.

Project Selection Process:

- Preliminary Project Identification, Evaluation, Shortlisting
- Regional EC Orientation Meetings (Manila, Cebu, CDO/Davao/Butuan)
- EC Submission of Expression of Intent to Participation and Project Info
- Evaluation by Project Evaluation Committee (NEA, DOE, Landbank, AIEC, OREEi)
- Shortlisting

Final Project Evaluation and Selection

- EC Visit
- EC Board Confirmation and
- EC Project List



- EC Staff Training
- EC-AIEC Project Visits
- Site Surveys/Studies
- Community Meetings
- Design Studies
- Final Design Completion
- EC DDP/PPDP Update/Revision with AIEC
- Final Approval by EC Board and Submission to PMO
- Final Evaluation by PMO and Approval
- Submission of Projects to Landbank Local Lending Centers