

# CLIMATE INVESTMENT FUNDS

August 9, 2017

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**[APPROVAL BY MAIL]: HONDURAS: ERUS UNIVERSAL ENERGY ACCESS PROGRAM  
(SREP)(IDB)- XSREHN010A-**

**IDB RESPONSE TO COMMENTS FROM UNITED KINGDOM**

A1: First of all, due to an internal error, the economic analysis that we submitted considered the original allocation of USD 6.18 million to the micro-grid component, rather than the final allocation of USD 5.3 million (the amount was reduced due to a lack of available resources in SREP). The unit cost in each solution increases when the installed capacity is reduced, due to constant logistic costs. The updated economic analysis follows:

#### GUANAJA

Investment [million USD]	2.75
IRR [%]	15.81%
NPV [million US\$]	0.69
LCoE [cUS\$/kWh]	34.7
Diesel Price [cUS\$/kWh]	43.0
Price reduction [%]	24%

#### BRUS LAGUNA

Investment [million US\$]	2.55
IRR	15.45%
NPV [million US\$]	0.61
LCoE [cUS\$/kWh]	48.2
Diesel Price [cUS\$/kWh]	58
Price reduction [%]	20%

The economic analysis shows that the projects are in effect economically feasible. However, as it has been mentioned in the document, since the Guanaja and the Mosquitia regions have the highest electricity rates in the country (more than three times more than the mainland), the government's position is that the savings due to the introduction of the PV systems should be transferred to the local population. Project sustainability will not be affected, since the utility will ensure that electricity sales will cover operation and maintenance costs, including the replacement of batteries and other system components. In addition to the direct benefit to the local population from rate reduction, the price of public services such as water and wastewater will be reduced, contributing to local economic development.

To guarantee the financial sustainability of the project, the execution will be subject to the approval of a new regulation of rates for isolated areas, including the cases when there is support for investment for power generation based on clean energy. The regulation will be approved by the national regulatory agency and the government is already working on it.

This will be the first solar micro-grid project to be implemented in Honduras. Lessons to be learned from this project will be used by the government in other regions that are not connected to the main grid. Based on these lessons, the Government will consider moving ahead with loans for expanding electricity coverage with the use of microgrids. Finally, as it was explained in the ADERC transmission project, the standby agreement of Honduras with the International Monetary Fund has limited the indebtedment of the country. Since the national power utility is state-owned, there is no fiscal space to do additional loans to the ones that were already approved by the Ministry of Finance under the IMF agreement.

Summing up, taking into consideration the economic hardship of the local population, the high investments needed for PV, the first-of-its-kind nature of the project, and the macro-economic context of the country, we consider that the use of grant resources is justified.

A2: We apologize for this error in the cover page. The correct emission factor is 0.75 kg CO<sub>2</sub>e/kWh. (Incidentally, this value is conservative: Several similar projects assume a higher emission factor of 0.8 kg CO<sub>2</sub>e/kWh.)

A3: The NPV was calculated considering total expenses and total revenues cash flow. As it was explained in answer A1, the revenues took into consideration electricity sales based on the current situation (electricity rate based on diesel use). For the total expenses, we considered operation and maintenance expenses, and the periodic replacement of batteries, inverters and other critical equipment.

The IRR and NPV change as a function of the electricity rate. For example, for Guanaja, a rate of 43¢/kWh leads to an IRR of 15.8% and an NPV of USD 0.69 million, whereas with a rate of 35¢/kWh the IRR is 11.2% and the NPV is negative.

Most of the IPP grid-connected renewable energy projects have a 20-year PPA with the national power utility and an IRR higher than 18%. All payments for these projects are guaranteed by the government. For isolated systems, currently there is no incentive mechanism in place.

A4: The selection of places to be benefited from the program took into consideration stakeholder engagement and a presence of IDB technical cooperation activities focused on regional economic development. Nevertheless, public consultations in Brus Laguna and in the southern area of the country have not yet been executed because ENEE has decided not to make the public consultation until after the project is approved by the SREP Subcommittee.

A5: We appreciate your comments and we apologize for not providing enough information on this activity.

Given the low income of the people in these regions, the government does not consider that it is feasible to provide solar systems on a fully sustainable commercial basis. Subsidies to the upfront investments are justified in the context of the government's social policies. In the case of this program, solar systems will be co-financed with SREP resources (and additional contributions from the beneficiaries). The focus is therefore on ensuring that the operation and maintenance are sustainable by ensuring that users' fees are enough to cover these expenses.

The collection and management of fees will be carried out either through mobile technology (where feasible) or through the rural savings institutions. The use of the mobile technology is particularly promising, not only for assuring project sustainability, but also for catalyzing economic development in the areas of influence.

This subsidized financing scheme for solar systems has been successfully implemented in programs implemented by the Government at the national level. ¶1.22 of our Proposal for Operational Development reports the experience in the country, which has led to a market for rural electrification. Although there is no an updated figure of the participation of individual solar systems in the country, the National Census conducted at the end of 2013 reports that 1.6% of houses in Honduras produce electricity from individual solar panels. That figure has increased on account of ongoing programs.

In addition to technology providers and fee collectors, this business model also fosters the creation of micro-enterprises for the maintenance and repair of solar systems. This will be the case in the municipalities of Concepción de María and El Corpus. Finally, as explained on the proposal, the project will also rely on the role of the parents' associations and boards of trustees for projects in schools and health centers, respectively.

The IDB group through the now extinct Opportunities for the Majority program and through the Multilateral Investment Fund (MIF) has been carrying out different programs aimed at supporting the development of small and medium-sized enterprises with innovative technologies, including solar home and SME systems. There are in particular two projects financed by MIF: one for implementing a de-risking mechanism for rural solar energy in Honduras, and one for supporting mobile companies to increase the productivity in Honduras, by incorporating innovative mechanisms to reduce the cost for collecting money in isolated areas. The project will profit from these experiences by using the best lessons learned from the IDB group.

A6: Non-conventional renewable electricity supply has grown in the last years at an annual rate of 7.2%. However, due to the prolonged droughts that Honduras has faced since 2014 (closely linked to climate change), electricity production from hydropower plants has been reduced by 5% every year. As a result of these two processes, the net annual average increase in renewable electricity production has been approximately 2.7%.

A7: The impact of this project will be to increase by 0.2% modern energy access in the country.

A8: The NDC Honduras document reports “The Republic of Honduras aims to significantly reduce the sector with more emissions, i.e. the production of electricity, while meeting the new national needs derived from population and economic growth. All of this strategy is aligned with a low carbon development strategy.”

The NDC is in line with the long-term Country Vision Plan (2010-2038) of Honduras, which aims to increase the participation of renewable energy for power generation, with a 60% target for 2022, and a 80% target for 2038.

The NDC also reports that “The Republic of Honduras undertakes, as a sectoral objective, to afforestation / reforestation of 1 million hectares of forest by 2030. Likewise, through the NAMA of efficient stoves, it is expected to reduce firewood consumption by 39% Families, helping in the fight against deforestation”. SREP resources are supporting Honduras' efforts to disseminate efficient stoves through the “Promoting Sustainable Business Models for Clean Cookstoves Dissemination” project, and through the “Support for the Use of Climate Finance Instruments for Low-Carbon Cook-stoves” component of this proposal.

A9: Access to reliable energy will enable the communities in Brus Laguna and in Guanaja to increase the value-added of their productive activities, thanks to the ability to use energy for refrigeration and crop processing applications.

Due to the high cost of electricity, economic activities in these two locations are constrained. In the specific case of Guanaja, the lack of affordable and reliable electricity supply affects the operation of water and wastewater facilities. Water pollution is affecting the coral reefs, which are the most valuable asset for the Island's tourism industry. Renewable energy production will also reduce the risk of diesel spills in the sea. Summing up, the project will help to improve tourism services and this will in turn help economic development.

Fishing is an important economic activity in Brus Laguna, the Moskitia region and Guanaja. However, it has been constrained due to the lack of access to reliable electricity. The IDB group is working in both places under the Mipesca project, supporting artisanal fishermen to strengthen their capacities to sell their products in the national and international markets. The analysis shows that the main constraint to develop the activity is the accessibility and affordability of electricity.

In the southern region of Honduras where individual solar systems will be installed, the main economic activity is agriculture. In this region, access to electricity will favor small scale agroindustry activities.

The project will benefit indigenous communities from Honduras that face different economic problems. The inhabitants of Guanaja are black and English speaking, while in Brus Laguna most are Miskito. Both ethnic groups are active in favor of initiatives to address climate change impacts. On the other hand, energy will also contribute to the provision of public services such as water and wastewater that demand energy. The project will improve the quality of life of the citizens and will reduce the risk of illegal migration, mainly to the United States of America, which has been a serious social issue in Honduras, Guatemala and El Salvador and the main driver for promoting the Alliance for Prosperity in the Northern Triangle.

With regards to job creation, the estimated figures are as follows (i) for the microgrids, project construction is expected to generate at least 70 direct jobs in each location, and for operation and maintenance 15 in each location; (ii) for the individual solar systems, and based on previous experiences and the complexity for logistics, we estimate 120 jobs for construction, and for operation and maintenance at least 12 jobs.