# REVISED SREP INVESTMENT PLAN FOR HONDURAS

**March 2017**

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## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ADERC | *Apoyo al Desarrollo de las Energías Renovables en Conexión con la Red* (Grid-connected Renewable Energy Development Support) |
| CIF | Climate Investment Funds |
| CNE | *Comisión Nacional de Energía* (National Energy Commission) |
| $CO_2e$ | carbon dioxide equivalent |
| CREE | *Comisión Reguladora de Energía Eléctrica* (Electric Power Regulatory Commission) |
| CTF | Clean Technology Fund |
| DPSP | Dedicated Private Sector Programs (CTF) |
| ENEE | *Empresa Nacional de Energía Eléctrica* (National Electricity Enterprise) |
| ERIBA | *Evaluación del Recurso Renovable en Islas de la Bahía* (Assessment of the Renewable Resources in the Bay Islands) |
| ERUS | *Energización Rural Sostenible* (Sustainable Rural Energization) |
| FHIS | *Fondo Hondureño de Inversión Social* (Honduran Social Investment Fund) |
| FOSODE | *Fondo Social de Desarrollo Eléctrico* (Social Fund for Electric Power Development) |
| FOMPIER | *Fortalecimiento del Marco de Políticas e Institucional para Energías Renovables* (Strengthening the Renewable Energy Policy and Institutional Framework) |
| GDP | Gross Domestic Product |
| GHG | greenhouse gases |
| GoH | Government of Honduras |
| HDI | Human Development Index |
| HNL | Honduran Lempira (current exchange rate is 23.52 HNL = 1 USD) |
| H-REFF | Honduras Renewable Energy Finance Facility |
| IDB | Inter-American Development Bank |
| IDBG | IDB Group |
| IFC | International Finance Corporation |
| IMF | International Monetary Fund |
| IP | Investment Plan |
| IPPG | Investment Plan Preparation Grant |
| IRENA | International Renewable Energy Association |
| LGIE | *Ley General de la Industria Eléctrica* (Electric Power Industry Act) |
| MER | *Mercado Eléctrico Regional* (Central American Regional Electricity Market) |
| M | million |
| MDB | Multilateral Development Bank |
| MiAmbiente+ | *Secretaría de Energía, Recursos Naturales y Ambiente* (Ministry of Energy Natural Resources and Environment) |
| MIF | Multilateral Investment Fund (IDB) |
| MPIS | MDB project implementation services |
| NCRE | non-conventional renewable energy |
| NDC | Nationally-Determined Contribution |
| OdS | *Operador del Sistema* (Power System Operator) |
| OLADE | *Organización Latinoamericana de Energía* (Latin American Energy Organization) |
| PAUE | *Programa para el Acceso Universal a la Energía* (Universal Energy Access Program) |
| PPG | project preparation grant |
| PPP | public-private partnership |
| PSSA | Private Sector Set-Aside (SREP) |
| SIEPAC | *Sistema de Interconexión Eléctrica para los Países de América Central* (Central American Electric Interconnection System) |
| SIN | *Sistema Interconectado Nacional* (National Interconnected System) |
| SREP | Program on Scaling-Up Renewable Energy in Low-Income Countries |
| PV | photovoltaic |
| RE | renewable energy |
| UMA | *Unidad Municipal de Ambiente* (Municipal Environmental Unit) |
| UNFCCC | United Nations Framework Convention on Climate Change |
| USD | Dollars of the United States of America |
| WB | World Bank |

## 1. EXECUTIVE SUMMARY

The SREP Investment Plan (IP) for Honduras, endorsed by the SREP Sub-Committee on 4 November 2011, includes three components: (i) Strengthening the RE Policy and Regulatory Framework (FOMPIER); (ii) Grid-Connected RE Development Support (ADERC), and (iii) Sustainable Rural Energization (ERUS). Five years after its endorsement, the GoH, in collaboration with the MDBs, is submitting this Revision document.

This Revised SREP IP for Honduras proposes reallocating pending SREP IP resources, in order to support two priority projects:

For the off-grid component (ERUS), the GoH proposes the creation of a Universal Energy Access Program (PAUE), which would build on the institutional platform offered by the Social Fund for Electric Power Development (FOSODE), all by maintaining the original SREP resource allocation for the ERUS component of the IP (namely, a total of USD 10.2 million). FOSODE is now a sustainable mechanism to extend the electricity grid to reach communities that currently lack access to electricity. FOSODE however lacks resources to provide RE options for the most isolated communities. SREP resources are therefore an optimal complement. ERUS - PAUE will have three components: (i) *Isla Verde* will incorporate 1.2 MW of energy capacity (with a blend of wind and solar technologies) in the Island of Guanaja; (ii) Energy Access for Rural Communities will supply renewable energy systems for 4,500 households in the East and South of the country, and (iii) Support to the Use of Climate Finance for Low-carbon Cook-stoves will support the work of GoH to attract international climate change resources for efficient and low-carbon cook-stoves.

With regards to the on-grid component of the IP, Honduras has experienced an accelerated development of grid-connected non-conventional RE capacity (partly with the support of SREP and CTF resources). In the current context, transmission has become a bottleneck for further RE development. The GoH is proposing to reallocate resources previously allocated to RE generation and policy development to focus on this strategic priority.

Table 1 below shows the proposed resource reallocation.

**Table 1. Executive Summary – Proposed Reallocation of Pending Resources (USD million)**

| Project title | MDB | Comment | Change |
|---|---|---|---|
| **Previous allocation** | | | |
| Sustainable Rural Energization (ERUS) - Rural Electrification | WB | Project dropped | -8.313 |
| Grid-Connected RE Development Support (ADERC) - Generation | IFC | Project dropped | -5.950 |
| **TOTAL** | | | -14.263 |
| **New allocation** | | | |
| ERUS - PAUE project | IDBG | New project | 7.481 |
| Grid-Connected RE Development Support (ADERC) - Transmission | IDBG | Project with additional resources | 6.782 |
| **TOTAL** | | | 14.263 |

In addition, it is proposed that some unutilized resources from IDBG projects that have already been approved by the SREP Sub-Committee are reallocated to the ADERC-Transmission project (a total of USD 703,000).

Table 2 below summarizes the allocations for the 3 components of the IP (and for the preparation and supervision component) before and after the revision. It shows that resources have been reallocated from the preparation and supervision and FOMPIER components to the ADERC

component (to strengthen the critical ADERC - transmission project). It also shows that the resources for the ERUS component remain unchanged.

**Table 2. Executive Summary - Reallocation among IP Components (USD million)**

| Component | Before Revision | After Revision |
|---|---|---|
| Preparation and Supervision | 1.400 | 0.310 |
| Strengthening the RE Policy and Regulatory Framework (FOMPIER) | 1.700 | 0.850 |
| Sustainable Rural Energization (ERUS) | 10.200 | 10.216 |
| Grid-Connected RE Development Support (ADERC) | 16.700 | 18.624 |
| **TOTAL** | **30.000** | **30.000** |

The revision of the IP would have an impact on the expected results. While the RE capacity directly financed will be reduced, the RE capacity indirectly supported through transmission infrastructure would increase. The number of people with new access to electricity from RE would be reduced, reflecting both the fact that the use of SREP resources will be focused on higher to reach areas, and the fact that on one part of the resources in the ERUS component will be used to introduce RE in the Bay Islands (See Table 3 below).

**Table 3. Executive Summary - Summary of Revised Result Indicators**

| Result indicator | | Original IP | Revised IP |
|---|---|---|---|
| People with new access to electricity from RE | | 100,000 | 22,500 |
| Improved cook-stoves | | 50,000 | 50,000 |
| Firewood savings | | 60% | 47% |
| RE capacity (MW) | Direct (generation) | 60 | 44 |
| | Indirect (transmission) | 208 | 380 |
| GHG emissions avoided (tons $CO_2e$ / year) | | 152,000 | 865,000 |
| Total co-finance (USD M) | | 243 | 190 |

## 2. INTRODUCTION

The SREP Investment Plan (IP) for Honduras, endorsed by the Trust-Fund Sub-Committee of the Program on Scaling-Up Renewable Energy in Low-Income Countries (SREP) on 4 November 2011, includes three components, to be executed by the World Bank (WB), the International Finance Corporation (IFC), and the Inter-American Development Bank Group (IDBG):

- Strengthening the RE Policy and Regulatory Framework (FOMPIER),
- Grid-Connected RE Development Support (ADERC), and
- Sustainable Rural Energization (ERUS).

**Table 4. Honduras SREP-IP Original Financing Plan (USD million)**

| Component | Private/ local investors | SREP Grants | Other SREP-con-cessional finance | MDBs | Bank loans | NGOs | ICAs | GoH | Total |
|---|---|---|---|---|---|---|---|---|---|
| **General preparation and operation expenses** | | | | | | | | | |
| IP Preparation Grant | | 0.375 | | | | | | | **0.375** |
| Operation expenses for in-vestment implementation (5yrs) | | 1.025 | | | | | | 0.2 | **1.225** |
| **Component 1: Strengthening the RE Policy and Regulatory Framework (FOMPIER)** | | | | | | | | | |
| RE Policy | | 0.3 | | | | | 0.1 | 0.1* | **0.5** |
| Law & Regulations | | 0.3 | | | | | 0.1 | 0.1* | **0.5** |
| Energy Control Standards | | 0.3 | | | | | 0.1 | 0.1* | **0.5** |
| Capacity Building | | 0.8 | | | | | 0.1 | | **0.9** |
| *Sub-total* | | *1.7* | | | | | *0.4* | *0.3* | ***2.4*** |
| **Component 2: Grid-Connected RE Development Support (ADERC)** | | | | | | | | | |
| Component Preparation | | 0.3 | | | | | | | **0.3** |
| Pre-investment/equity | 20.0 | | | | | | | | **20.0** |
| Risk Capital Fund | | | 10.0 | 10.0 | | | | | **20.0** |
| RE Projects Debt | | | | 60.0 | 60.0 | | | | **120.0** |
| Access infrastructure to RE potential | | 4.0 | | 50.0 | | | | 2.5 | **56.5** |
| Studies/consultancies | | 1.2 | | | | | 0.1 | 0.1 | **1.4** |
| Capacity building | | 1.2 | | | | | 0.2 | | **1.4** |
| Fiscal Support§ | | | | | | | | 14.5 | **14.5** |
| *Sub-total* | *20.0* | *6.7* | *10.0* | *120.0* | *60.0* | | *0.3* | *17.1* | ***234.6*** |
| **Component 3: Sustainable Rural Energization (ERUS)** | | | | | | | | | |
| Component preparation | | 0.3 | | | | | | | **0.3** |
| RE systems for isolated communities | 6.0 | 6.0 | | 6.0 | | | 4.0 | 2.0‡ | **24.0** |
| Sustainable and efficient firewood use | 2.0 | 2.0 | | | | 1.0 | 2.0 | 0.5‡ | **7.5** |
| Studies/technical designs/consultancies | | 0.95 | | | | | 0.5 | 0.1* | **1.55** |
| Capacity building | | 0.95 | | | | | 0.5 | | **1.45** |
| *Sub-total* | *8.0* | *10.2* | | *6.0* | | *1.0* | *7.0* | *2.6* | ***34.8*** |
| Total (SREP Stage 1) | 28.0 | 20.0 | 10.0 | 126.0 | 60.0 | 1.0 | 7.7 | 20.2 | **272.9** |

Notes: * GoH contributions in kind and labor. ‡ GoH contributions in kind and labor and contributions by local governments. § Fiscal support includes USD 6M in tax exemptions and USD 8.5 M in incentives given to renewable energy tariffs, provided by ENEE

Table 4 above shows the financing plan included on the original IP.

After the endorsement of the IP, the GoH and the MDBs agreed to develop seven projects. In order to simplify the pipeline and portfolio programming and reporting processes, some of these projects include activities corresponding to two or more components of the original IP.

Table 5 below explains the relationship between the IP components and the projects as they appear on CIF reports.

**Table 5. IP Components and CIF Projects (USD million)**

| CIF project | | SREP approval | IP Component | | | | TOTAL |
|---|---|---|---|---|---|---|---|
| | | | Prep.&Sup. | FOMPIER | ERUS | ADERC | |
| IPPG | | 03/2011 | 0.375 | | | | **0.375** |
| XSREHN006A (FOMPIER, IDBG) | | 10/2012 | | 0.850 | | | **0.850** |
| XSREHN011A (ERUS - Cookstoves, IDBG) | | 10/2013 | 0.512 | | 2.435 | | **2.947** |
| XSREHN010A | PPG | 11/2011 | | | 0.300 | | **0.300** |
| (ERUS - Rural Electrification, WB) | Main | | 0.513 | 0.850 | 6.950 | | **8.313** |
| XSREHN008A | PPG | 11/2011 | | | | 0.300 | **0.300** |
| (ADERC - Generation / H-REFF, IDBG) | Main | 08/2015 | | | | 5.950 | **5.950** |
| XSREHN007A | PPG | 06/2015 | | | | 0.500 | **0.500** |
| (ADERC - Transmission, IDBG) | Main | | | | 0.515 | 4.000 | **4.515** |
| XSREHN009A (ADERC - Generation, IFC) | | | | | | 5.950 | **5.950** |
| **TOTAL** | | | **1.400** | **1.700** | **10.200** | **16.700** | **30.000** |

The following section describes the status of implementation of the seven projects under the IP, as well as of those funded with other CIF resources.

## 3. STATUS OF IMPLEMENTATION

### a) Investment Plan Preparation Grant

A USD 375,000 IP preparation grant (IPPG) was approved by the SREP on 31 March 2011, and was executed by the IDBG. Execution continued after IP endorsement and supported the participation of the GoH in the project preparation stage.

### b) Strengthening the RE Policy and Regulatory Framework (FOMPIER) (XSREHN006A)

The project "Strengthening the RE Policy and Institutional Framework (FOMPIER)" was approved by the SREP Sub-Committee on 29 October 2012, and by the IDBG on 12 December 2012.

Some initial activities were carried out under this technical cooperation. However, rapid changes in the Honduran context—in particular the approval and implementation of the Power Sector Framework Law—asked for a revision of the activities that were originally planned.

Execution of this project will continue in 2017. It will support the preparation and implementation of the secondary regulations of the new Law, which seek to enable the country to continue increasing the share of renewable energy, considering the recent growth in wind and solar capacity.

### c) Sustainable Rural Energization (ERUS) – Clean Cook-Stoves (XSREHN011A)

The ERUS Clean Cook-stove project was approved by the SREP Sub-Committee on 17 October 2013. It included two components:[1]

- *Promoting Sustainable Business Models for Clean Cook-stoves Dissemination*, with an amount of USD 2.435 million. This component was approved by the Donors Committee of the IDBG's Multilateral Investment Fund (MIF) on 6 November 2013 (including a MIF investment of USD 2.189 million).
- *SREP Honduras Operation Expenses for Investment Implementation*, with an amount of USD 512,000. This component has not been approved by the IDBG.

The project *Promoting Sustainable Business Models for Clean Cook-Stoves Dissemination* has made progress on several fronts: It supported the development of national regulations for improved cook-stoves, as a basis for standardizing the quality of the different models to be implemented. In the same line, the project has made progress in the creation of tools to evaluate the durability of cook-stove components. A pilot project that distributed 3,000 improved cook-stoves in 2015-2016 generated lessons that will help in the incorporation of strategic partners. The project has now received more than 30 expressions of interest from different organizations. It developed a communication strategy to promote the demand of improved stoves through marketing actions, as well as a set of tools for microcredit management. The carbon revenue subcomponent has moved more slowly due to the complexity of the carbon market; the dialogue continues with international organizations working in the voluntary market.

For 2017, the priorities are:

1. To move forward with the construction of a new batch of clean cook-stoves.
2. To have a draft for the national clean cook-stove performance regulations (including energy efficiency, particulate matter, and safety) ready to go to public consultation.
3. To develop the curriculum to train technicians in clean cook-stove construction and parts manufacture.

### d) Sustainable Rural Energization (ERUS) – Rural Electrification (XSREHN010A)

A USD 300,000 project preparation grant for ERUS (including clean cook-stoves and rural electrification) was approved simultaneously with the endorsement of the IP, and executed by the WB.

An additional combined amount of USD 8.313 million (including resources from the preparation and supervision, FOMPIER, and ERUS components of the IP) had been allocated to the WB. However, due to internal reasons *the World Bank is unable to approve these resources in the short term, and has suggested to the GoH their reallocation.*

[1] The project document referred to a further activity, titled *Promoting Sustainable Public Policies for Clean Cook-stoves Dissemination*, with an amount of USD 515,000. For pipeline programming purposes, this activity, which has not been approved by SREP, was merged with the ADERC-Transmission project. This Revised Investment Plan proposes that this activity will not be carried out as part of the ADERC-Transmission project. Instead, the new proposed ERUS-PAUE project will include an activity (with a smaller amount) on cook-stove finance (see below, p. 16).

### e) Grid-Connected RE Development Support (ADERC) – Generation / H-REFF (XSREHN008A)

A USD 300,000 project preparation grant for this component was approved simultaneously with the endorsement of the IP and executed by the IDBG.

The "Honduras Renewable Energy Finance Facility (H-REFF)" was approved by the SREP Sub-Committee on 5 August 2015, including USD 5 million of IP resources, and USD 15 million of SREP PSSA resources. This project was approved by the Donors Committee of the IDBG's Multilateral Investment Fund (MIF) on 30 September 2015, including a MIF investment along with the SREP co-investment. Once the Fund Manager was selected through a competitive process, the fund-raising began to meet the minimum capitalization requirements. (This process was slower than expected due to market conditions affecting fundraising for seed capital across the region, particularly for single-country funds in smaller countries.) The Fund has now been legally incorporated and has reached its minimum capitalization requirements. It is now closed and implementation has begun.

### f) Grid-Connected RE Development Support (ADERC) – Transmission (XSREHN007A)

A project preparation grant for the IDBG's transmission project with USD 500,000 of SREP resources was approved by the SREP Sub-Committee on 5 June, 2015, and by the IDBG on 23 July 2015. It is currently in execution.

The ADERC Transmission project, with an allocation of USD 4.515 million, was designed to leverage additional sources, including from IDBG and other international resources. As part of the Stand-By Arrangement that Honduras has with the IMF, the amount that Honduras can lend from international financial institutions has been limited. Because of this, the loan for transmission has been postponed by the GoH to 2017. The project is currently scheduled for submission to SREP in May 2017.

### g) Grid-Connected RE Development Support (ADERC) – Generation (XSREHN009A)

In late 2014, IFC arranged financing for a series of solar PV projects, using its own funds blended with loans from the Clean Technology Fund's (CTF) Dedicated Private Sector Programs (DPSP) (see below). With this successful series of projects and, given the temporary saturation of the market with solar PV utility-scale capacity, further capacity additions (especially with intermittent energy sources) shall be done strategically and considering the ability of the grid to accommodate further expansions. *IFC has therefore suggested to the GoH to consider reallocation of the current IFC SREP allocation of USD 5.95 million to higher-priority areas.*

### h) Additional CIF Resources for Honduras

The following renewable energy generation projects have been approved by the private sector programs of the Climate Investment Funds. They are all aligned with the ADERC component of the IP.

**Honduras Renewable Energy Finance Facility – Additional Resources (PSREHN501A)**

These USD 15 million from the SREP PSSA were combined with USD 5 million of IP resources. See the status of this project in the section on the H-REFF, above (see p. 10).

**Honduran Self-Supply Renewable Energy Guarantee Program (PSREHN603A)**

This program was funded with USD 5.5 million of SREP PSSA resources, including USD 5 million for investment, and USD 0.5 million for technical cooperation activities. In addition to the technical cooperation component (which is in execution), two investment projects have been approved by the IDBG under this program:

- *Invema*. Inversiones Materiales, S. de R.L. de C.V. (Invema) is a Honduran recycling company located in San Pedro Sula. The project generates zero-emission electricity for self-consumption through photovoltaic solar panels mounted on the roofs of Invema's buildings. In addition, the project includes energy efficiency improvements (replacing old lighting and recycling equipment). The PV project has a 1MW capacity in operation since 2015 and is one of the first movers in the rooftop market, thus reinforcing the demonstration effect to motivate other similar projects and help develop a solar panel installation market in Honduras. This IDBG project has a SREP guarantee of USD 375,000.
- *Smart Solar*. Smart Solar is a Honduran solar developer that offers commercial-scale solar projects using PV panels that generate electricity for self-consumption by commercial clients. The proposed project will finance a portfolio of solar PV sub-projects implemented by Smart Solar. The sub-projects will generate electricity for self-consumption through PV solar panels mounted on the roofs of commercial buildings. The energy generated by the solar panels will be sold to Smart Solar's clients under a shared savings agreement. The PV projects are expected to have around 1MW of total installed capacity. This IDBG project has a SREP guarantee of USD 475,000. The project is currently on hold, due to regulatory delays with the implementation of the net metering policy.

The IDBG is currently identifying potential additional subprojects within this Program. The remaining balance amounts to USD 4.15 million.

**SunEdison Solar Farms (PCTFHN617A)**

USD 20 million from the CTF DPSP were approved for the IFC's Solar Photovoltaic Financing Honduras Utility-Scale Solar PV Sub-Program (within the Utility-Scale Renewable Energy Program).

In late 2014, IFC arranged financing for a series of solar PV projects developed by a subsidiary of SunEdison Inc.[2]—Choluteca I, Choluteca II, and Pacífico—, with a combined installed capacity of 81.7 MW and USD 146 million in total financing costs. In addition to providing USD 48 million of its own funds, IFC 'blended' USD 19.5 million of senior and subordinated loans from the CTF DPSP. These CTF funds allowed mitigating project risks and, thereby, attracting sufficient financing to these projects. In summer 2015, these three solar PV plants began selling electricity to the grid via power purchase agreements with the National Electricity Enterprise (ENEE), the state-owned utility. The plants are now generating approximately 168 GWh of energy annually, helping reduce roughly 70,000 tons of $CO_2e$ per year.

These solar PV plants became the largest solar power development in Central America, as well as the first financing committed under the CTF's DPSP. In addition, these plants support an

[2] See IFC press release: http://bit.ly/IFCsolHON.

ongoing diversification of Honduras' electricity mix and have contributed to creation of new jobs during construction and operation phases, with many of these jobs in rural areas.

### i) Summary of IP Status

Table 6 below summarizes the status of the Investment Plan, as well as that of the additional CIF resources from the SREP PSSA and the CTF DPSP.

**Table 6. Status of Implementation of SREP IP and other CIF resources (USD million)**

| Project title | CIF code | MDB | PPG | Grant | Reimb. | Status |
|---|---|---|---|---|---|---|
| Investment Plan Preparation Grant | IPPG | IDBG | 0.375 | | | Executed |
| Strengthening the RE Policy and Regulatory Framework (FOMPIER) | XSREHN006A | IDBG | | 0.850 | | In execution |
| Sustainable Rural Energization (ERUS) - Clean Cook-stoves | XSREHN011A | IDBG | | 2.947 | | In execution |
| Sustainable Rural Energization (ERUS) - Rural Electrification | XSREHN010A | WB | 0.300 | 8.313 | | Pending revision |
| Grid-Connected RE Development Support (ADERC) - Generation / H-REFF | XSREHN008A | IDBG | 0.300 | 0.950 | 5.000 | In execution |
| Grid-Connected RE Development Support (ADERC) - Transmission | XSREHN007A | IDBG | 0.500 | 4.515 | | In preparation |
| Grid-Connected RE Development Support (ADERC) - Generation | XSREHN009A | IFC | | 0.950 | 5.000 | Pending revision |
| **TOTAL HONDURAS INVESTMENT PLAN** | | | **1.475** | **18.525** | **10.000** | |
| H-REFF additional resources (SREP PSSA) | PSREHN501A | IDBG | | | 15.000 | In execution |
| Honduran Self-Supply Renewable Energy Guarantee Program (SREP PSSA) | PSREHN603A | IDBG | | 0.500 | 5.000 | In execution |
| SunEdison Solar Farms (CTF DPSP) | PCTFHN617A | IFC | | 0.500 | 19.500 | In operation |
| **TOTAL ADDITIONAL CIF RESOURCES** | | | | **1.000** | **39.500** | |
| **TOTAL CIF RESOURCES FOR HONDURAS** | | | **1.475** | **19.525** | **49.500** | |

## 4. CIRCUMSTANCES AND RATIONALE FOR INVESTMENT PLAN REVISION

### a) ERUS and Rural Electrification

According to figures from 2015, about 15% of households in Honduras do not have access to electricity. The FOSODE, created by the GoH in 2008, has as from 2017 an annual budget of HNL 15 million as a direct allocation of the national budget, plus 1% of the distribution company's turnover (about USD 9.5 million). These resources are being used for grid extensions.

However, the assessments that have been made about the communities without access to electricity show that 7% of households cannot be reached through grid extensions in the short or medium term, due to their isolated location.

Reaching these communities is a priority for the GoH. FOSODE offers a solid institutional platform to supply renewable energy equipment for these isolated communities, but lacks the necessary financial resources.

Honduras also has isolated systems where power is produced by decentralized fossil fuels power generation units. The main systems are in the Bay Islands in the Caribbean and in the Mosquitia

region, both well-known because of their rich biodiversity. Each of the three main Bay Islands has a private utility that produce electricity on diesel power gen sets. The Bay Islands are the most important touristic place of Honduras and have a population of 50,000, according to the 2013 Census.

These fossil fuel-fired systems in the Bay Islands are inadequate and unsustainable because of three main reasons: (i) power supply is unreliable, with frequent blackouts; (ii) electricity price is high (at least USD 40¢/kWh even under current low oil prices), and (iii) oil spills from fossil fuel transportation jeopardize the fragile ecosystem and in particular the second largest coral reef in the world (some oil spills have been reported during the last years).

### b) ADERC and the Context of Grid-Connected Renewable Energy in Honduras

This section provides an overview of the current situation of the power sector. More details can be found on Annex 2 (p. 25) of this document.

**Dependence on fossil fuels**. The electricity sector in Honduras still has a high dependence on imported fossil fuels. In 2015 54.8% of the electricity was supplied from thermal power, 18.5% from State-owned hydropower plants, 25% from privately-owned mini and small hydropower plants, wind, solar and biomass, and 1.7% from the Central American Regional Electricity Market (MER).

**Reduction in hydropower generation**. In addition to its dependence on fossil fuels, the power sector of Honduras has also been heavily affected by prolonged draught seasons, strongly correlated with climate change. This vulnerability of the country's power system is set to increase.

**Expansion needs**. Current planning forecasts for electric power demand for the next 15 years show an annual growth rate of around 4.3% for the next five years, which represents adding 80 MW/year.

**Reform process**. The GoH has made significant progress on the proposed reform process, beginning with the entry into force of the Electric Power Industry Act (LGIE) on 4 July 2014. The reforms introduced by the LGIE include: (i) the creation of the Electric Power Regulatory Commission (CREE); (ii) the establishment of a National Electricity System Operator Entity (OdS) responsible for ensuring continuous and secure electricity supply and system operation; (iii) the participation of the private sector in the distribution, aiming to reduce energy losses (since August 2016 a new private company is working in distribution); (iv) the modernization and restructuring of ENEE as a holding company with generation, distribution, and transmission subsidiaries; (v) the free access to electricity grids and the definition of charges for their use; and (vi) the creation of the FOSODE to finance social interest projects.

The implementation of a series of measures has succeeded in reducing the impact of the ENEE's financial situation on the consolidated public sector deficit, which went from 1.8% of GDP at year-end 2013 to 0.3% of GDP at year-end 2015. The operating income versus current expenditure indicator has risen from 0.82 in 2013 to 0.86 in December 2014 and to 1.05 in December 2015.

**Development of non-conventional renewable energy**. In 2007 the GoH, concerned by the high participation of fossil fuel power generation and its price volatility, decided to launch the Renewable Energy Promotion Law. As a result of this law and its 2013 amendment, total PV installed capacity grew to 384 MW by 2015. In the same year 75 MW of wind power and 59

MW of small hydro were added into the system. Since peak demand in Honduras is only 1,470 MW, the country currently has one of the highest relative shares of solar PV in electricity generation in the World. In 2015, the installed capacity of non-conventional renewable energy (NCRE) systems grew by 22% and the participation of NCRE in energy production reached 25%.

**Economic impact of the increasing share of NCRE**. The GoH has made an important contribution by approving and implementing the Promotion Law for power generation based on NCRE. The Law has had a significant economic impact, due to the preferential dispatch of electricity, and to tax exemptions.

**Stability impacts of variable renewable energy.** In addition, the incorporation of variable NCRE (solar photovoltaic and wind energy has had some challenges in terms of the variability of the resources, which affects the stability of the power system, and in terms of a deficit of ancillary services, required for the normal operation of the power system.

**The transmission bottleneck**. One of the main barriers to increasing the participation of NCRE in the country's energy matrix is the lack of adequate transmission infrastructure to connect these power generation projects into the national grid. The transmission system is lagging in capacity due to insufficient investments, and this has limited system expansion, the reliability of electricity provision, and the quality of service, preventing further progress in terms of loss reduction. According to ENEE's Strategic Expansion Plan, the required investments for power transmission amount to more than USD 424 million, or about 2.3% of GDP. Weaknesses in the transmission system are affecting in particular the Northwestern region of the country, which has the highest potential for NCRE but poor transmission infrastructure, affecting the quality of service in the area and the highest rate of power interruptions and blackouts due to failures at the transmission level.

### c) The NDC of Honduras

The Nationally-Determined Contribution (NDC) of Honduras to the UNFCCC includes clean cook-stoves and the energy sector as part of its mitigation objectives.

## 5. Proposed Changes to the Investment Plan

### a) ERUS

The GoH and the MDBs propose reallocating some of the resources previously allocated to the WB, to a new project that will build on the institutional capacity of FOSODE and that will be executed by the IDBG. The total amount of resources allocated to the Sustainable Rural Energization (ERUS) component of the IP will remain unchanged, namely USD 10.2 million.

The new IDBG-FOSODE rural electrification Program for the Universal Access to Energy (PAUE) will promote the moto of *walking with energy towards social development in Honduras*. It will have three components (see also Annex 1, p. 20):

*Isla Verde* (Green Island). This component will incorporate 1.2 MW of energy capacity (with a blend of wind and solar technologies) in the Island of Guanaja, aimed at reducing the current consumption of fossil fuels. This component will benefit from the results of the Technical Cooperation activity "Assessment of the Renewable Resources in the Bay Islands" (ERIBA), which is being financed with IDBG resources. The budget for this component is USD 3 million.

Energy Access for Rural Communities. This component will supply renewable energy systems for 4,500 households. The business model will ensure the appropriation and sustainability of the investments, asking the users a contribution to cover one part (estimated at 15%) of the initial investment, as well as maintenance. It also proposes to support local service providers, as well as to follow a gender approach in training and in workforce selection. The budget for this component is USD 4.331 million of SREP resources.

Support to the Use of Climate Finance for Low-carbon Cook-stoves. In addition, the GoH proposes allocating USD 150,000 of SREP resources to support the work it is doing to attract more international climate change resources for efficient and low-carbon cook-stoves. Considering that Honduras' NDC to the UNFCCC includes improved cook-stoves, and that the SREP Investment Plan contemplates this issue, there is an opportunity to use a portion of the resources of the IP to support this area.

**b) ADERC**

In a context of dwindling water supply, intermittent technologies such as solar and wind become the ideal complement to the existing hydro infrastructure, as hydro ceases being a baseline source of electricity, and becomes a flexible complement to intermittent sources, operating to fill the gaps of wind and solar power. The development of NCRE is therefore a strategy that both *mitigates* climate change and provides *adaptation* benefits.

In the current context of an increasing RE generation capacity in the country, the GoH has identified transmission infrastructure as the critical bottleneck that is hampering the further penetration of NCRE and that represents additional impacts on the reliability of supply. The development of transmission infrastructure will also enable the Central American SIEPAC system to increase its share of renewable energy.

It is therefore proposed to reallocate SREP resources previously allocated to RE generation and policy development to focus on this strategic priority.

The ADERC transmission project (see also Annex 2, p. 25) will support the GoH in expanding and improving the power transmission infrastructure for the connection of the renewable energy generation sources to the SIN, and for strengthening the interconnection capacity with the MER.

The specific objectives of the ADERC transmission project are: (i) to ensure connection to the National Interconnected System (SIN) with generation projects from NCRE sources; (ii) to diversify the country's generation matrix; (iii) to fulfil regional commitments to strength the national transmission system.

The ADERC transmission project is closely linked to the FOMPIER project (currently being redesigned). The specific objective of FOMPIER is to strengthen the regulatory, legal and planning framework to increase the participation of renewable energy, all by keeping as a premise the need to guarantee the financial sustainability of the power sector and to improve the functionality of the power sector.

The project will facilitate the access of 380 MW of clean renewable energy sources (PV, wind, and biomass) and contribute to an economic power dispatch.

### c) Reallocation of Pending Resources (not yet Approved)

Summing up, this Revised SREP Investment Plan for Honduras proposes the reallocation of USD 14.263 million of SREP resources (including USD 5 million of reimbursable resources) from projects that have not been approved and that are currently in pending status, namely:

- the World Bank ERUS rural electrification project (with USD 8.313 million of grant resources available), and
- the IFC ADERC Generation project (with a total amount of USD 5.95 million, including grant and reimbursable resources).

It is proposed to reallocate these resources to the following purposes (see also Table 7 below):

- Creating a new ERUS - PAUE rural electrification project with USD 7.481 million of SREP resources.
- Increasing by USD 6.782 million of SREP resources the amount allocated to the ADERC - Transmission project (including USD 5 million of reimbursable resources).

**Table 7. Proposed Reallocation of Pending Resources (USD million)**

| Project title | MDB | Comment | Change |
|---|---|---|---|
| **Previous allocation** | | | |
| Sustainable Rural Energization (ERUS) - Rural Electrification | WB | Project dropped | -8.313 |
| Grid-Connected RE Development Support (ADERC) - Generation | IFC | Project dropped | -5.950 |
| **TOTAL** | | | -14.263 |
| **New allocation** | | | |
| ERUS - PAUE project | IDBG | New project | 7.481 |
| Grid-Connected RE Development Support (ADERC) - Transmission | IDBG | Project with additional resources | 6.782 |
| **TOTAL** | | | 14.263 |

### d) Reallocation of the Unutilized Approved Resources

In addition, it is proposed that some of the unutilized resources from IDBG projects that have already been approved by the SREP Sub-Committee but that either have not been approved by the IDBG, or remain after execution, are reallocated to the ADERC-Transmission project. This represents a total amount of USD 703,000, and includes:[3]

- The component previously titled *SREP Honduras Operation Expenses for Investment Implementation* (see p. 9), with an amount of USD 512,000, which was approved by the SREP Sub-Committee (as a component of XSREHN011A), but not by the IDBG.
- A balance of USD 65,000 that remains after the execution of the IPPG.
- A balance of USD 126,000 that remains after the execution of the PPG for the ADERC-Generation project (XSREHN008A).

[3] On CIF pipeline reports the FOMPIER project (XSREHN006A) appears with an amount of USD 23,000. This is because the original IDBG FOMPIER operation (which spent this amount) was closed, due to internal operational reasons. The remaining amount (USD 827,000) will be used by the IDBG for a second FOMPIER operation, which will have the same objectives as the previous operation, but adapted to the current circumstances. This remaining balance of USD 827,000 is not included on the list above because it would not be reallocated, but rather used for the same original purpose. An information note on the new IDBG FOMPIER operation will be attached to the ADERC-Transmission proposal to be submitted to the Subcommittee. To note, since the WB project (that was going to include a component for supporting the strengthening of the policy and regulatory framework for rural electrification) is now cancelled, the revised IDBG FOMPIER operation will cover both on-grid and off-grid RE policy and regulatory aspects.

### e) Investment Plan after Revision

After endorsement of this Revised IP, the total indicative allocation of SREP resources for Honduras would remain at USD 30 million. The grant / non-grant balance would also remain the same, namely, USD 20 million in grant resources, and USD 10 million in reimbursable resources.

Table 8 below shows the new proposed SREP IP financing plan after the revision.[4] The Table assumes the reallocation of pending resources (section c above), as well as the reallocation of the unutilized approved resources (section d above).

For operational reasons, the ADERC – Transmission project will be divided in two phases (with two separate approvals).

**Table 8. Proposed SREP IP Financing Plan after Revision (USD million)**

| Project title | CIF code | MDB | PPG | Grant | Reimb | Status |
|---|---|---|---|---|---|---|
| Investment Plan Preparation Grant | IPPG | IDBG | 0.310 | | | Executed |
| Strengthening the RE Policy and Regulatory Framework (FOMPIER) | XSREHN006A | IDBG | | 0.850 | | In execution |
| Sustainable Rural Energization (ERUS) - Clean Cook-stoves | XSREHN011A | IDBG | | 2.435 | | In execution |
| Sustainable Rural Energization (ERUS) - Rural Electrification | XSREHN010A | WB | 0.300 | | | PPG executed |
| ERUS - PAUE project | *TBD* | IDBG | | 7.481 | | In preparation |
| Grid-Connected RE Development Support (ADERC) - Generation / H-REFF | XSREHN008A | IDBG | 0.174 | 0.950 | 5.000 | In execution |
| Grid-Connected RE Development Support (ADERC) - Transmission (Phase 1) | XSREHN007A | IDBG | 0.500 | 7.000 | | In preparation |
| Grid-Connected RE Development Support (ADERC) - Transmission (Phase 2) | *TBD* | IDBG | | | 5.000 | In preparation |
| **TOTAL HONDURAS INVESTMENT PLAN** | | | **1.284** | **18.716** | **10.000** | |

When submitting the ADERC-Transmission Phase 1 project for approval to the SREP Subcommittee (with a total amount of USD 7 million), the IDBG will request the approval of USD 6.297 million of *new* SREP grant resources, and will also ask for the Subcommittee's approval to reallocate the unutilized USD 703,000 from previously approved projects to this project.

Table 9 below summarizes the allocations for the 3 components of the IP (and for the preparation and supervision component) before and after the revision. It shows that resources have been reallocated from the preparation and supervision and FOMPIER components to the ADERC component, to strengthen the critical ADERC transmission project. It also shows that the resources for the ERUS component remain unchanged.

[4] Before the revision, some SREP projects included activities corresponding to two or more components of the original IP (see Table 5). After the revision, each SREP project corresponds to a single IP component.

**Table 9. Summary of Reallocation among IP Components (USD million)**

| Component | Before Revision | After Revision |
|---|---|---|
| Preparation and Supervision | 1.400 | 0.310 |
| Strengthening the RE Policy and Regulatory Framework (FOMPIER) | 1.700 | 0.850 |
| Sustainable Rural Energization (ERUS) | 10.200 | 10.216 |
| Grid-Connected RE Development Support (ADERC) | 16.700 | 18.624 |
| **TOTAL** | **30.000** | **30.000** |

## 6. MONITORING AND EVALUATION

Table 10 below shows the aggregated results of the IP. For the H-REFF and cook-stoves projects, the table shows the values included in the SREP-approved programs. For the ADERC - Transmission and ERUS - PAUE projects, the values correspond to the results that are expected to be included on the proposals to be submitted to SREP (see Annexes 1 and 2).

**Table 10. IP Expected Results**

| Result indicator | | H-REFF* | Cook-stoves | Trans-mission | ERUS - PAUE | TOTAL |
|---|---|---|---|---|---|---|
| People with new access to electricity from RE | | | | | 22,500 | 22,500 |
| Improved cook-stoves | | | 50,000 | | | 50,000 |
| Firewood savings (%) | | | 47% | | | 47% |
| RE capacity (MW) | Direct (generation) | 43 | | | 1.2 | 44 |
| | Indirect (transmission) | | | 380 | | 380 |
| GHG emissions avoided (tons $CO_2e$ / year) | | 80,000 | 199,000 | 584,000 | 1,970 | 865,000 |
| Co-finance (USD M) | MDB | 1.1 | 2.189 | 70 | 0.6 | 74 |
| | Private | 98 | 2 | | | 100 |
| | Other | 11.4 | 0.844 | | 4.0 | 16 |

* Only the proportion corresponding to IP resources

Table 11 below presents the summary of the revised expected Results Indicators and their target values. The reduction in people with new access to electricity from RE reflects the fact that other resources are currently being used for electrification with RE, and the use of SREP resources will be focused on higher to reach areas. Moreover, the GoH is proposing the use on one part of the resources in the ERUS component to introduce RE in the Bay Islands, where the inhabitants currently have access to electricity (albeit in an unreliable way). On the other hand, while the RE capacity directly financed will be reduced, the RE capacity indirectly supported through transmission infrastructure would increase.

**Table 11. Summary of Revised Result Indicators**

| Result indicator | | Original IP | Revised IP |
|---|---|---|---|
| People with new access to electricity from RE | | 100,000 | 22,500 |
| Improved cook-stoves | | 50,000 | 50,000 |
| Firewood savings | | 60% | 47% |
| RE capacity (MW) | Direct (generation) | 60 | 44 |
| | Indirect (transmission) | 208 | 380 |
| GHG emissions avoided (tons $CO_2e$ / year) | | 152,000 | 865,000 |
| Total co-finance (USD M) | | 243 | 190 |

The GoH has established that ENEE will coordinate the implementation of the SREP Plan and facilitate the exchange of information with the other stakeholders involved in project preparation and implementation. ENEE will consolidate result indicators into the SREP results framework, measuring the output, outcome and impact of the projects using the indicators specified in the above table.

## 7. STATUS OF SREP HONDURAS PIPELINE AFTER ENDORSEMENT

### a) Timetable for Project Submission and Approval

Table 12 below shows the expected dates of submission and approval for the remaining operations.

**Table 12. Submission Timetable**

| Project | Expected dates | |
|---|---|---|
| | Submission to SREP | IDBG approval |
| ERUS - PAUE | May 2017 | September 2017* |
| ADERC - Transmission, Phase 1 | May 2017 | September 2017 |
| ADERC - Transmission, Phase 2 | July 2017 | October 2017 |

* The expected approval date for the International Finance for Cook-stoves component is December 2017.

### b) Use of MPIS resources

Table 13 below shows the SREP resources approved and indicatively allocated to the MDB project implementation services (MPIS).

**Table 13. Use of MPIS Resources (USD)**

| Component | 1st tranche (Nov. 2011) | 2nd tranche | Comments |
|---|---|---|---|
| FOMPIER and ADERC - Transmission | 250,000 | *250,000** | Second tranche to be requested by IDBG at the time of project submission |
| Clean Cook-stoves and H-REFF | 221,000 | 241,500 | Second tranche approved by the SREP in August 2015 |
| Rural Electrification / PAUE | 214,000 | *214,000** | First tranche approved for the World Bank. Second tranche to be requested by IDBG at the time of project submission |

* Indicatively allocated.

## ANNEX 1. CONCEPT NOTE FOR THE ERUS UNIVERSAL ENERGY ACCESS PROGRAM (PAUE)

### c) Problem Statement

According to figures from 2015, about 15% of households in Honduras (approximately 250,000) do not have access to electricity.[5] In some departments the deficit in coverage reaches 35%. Households without access to electricity typically use kerosene lamps for lighting, with negative impacts on the health of the people, mainly due to harmful emissions. A large number of these households live in conditions of extreme poverty. The Human Development Index (HDI) in Honduras varies between 400 and 800. The Department of Lempira has an HDI of 0.554, and Choluteca of 0.627.

In order to address this problem, the GoH created in 2008 the FOSODE, executed by ENEE, the public utility. Since 2017 FOSODE has an annual budget of HNL 15 million as a direct allocation of the national budget, plus 1% of the distribution company's turnover (about USD 9.5 million per year). These resources are being used for grid extensions.

However, the assessments that have been made by ENEE about the communities without access to electricity show that approximately 15% of households cannot be reached through grid extensions in the short or medium term, due to their isolated location.

Honduras also has isolated systems where power is produced by decentralized fossil fuels power generation units. The main systems are in the Bay Islands in the Caribbean and in the Mosquitia region, both well-known because of their rich biodiversity.

The Bay Islands are the most important touristic place of Honduras and have a population of 50,000, according to the 2013 Census. Each of the three main Bay Islands has a mini-grid. The municipality owns the distribution infrastructure, and gives a concession to a private company to generate electricity. In all cases electricity is produced on diesel power gen sets.

These fossil fuel-fired systems in the Bay Islands are inadequate and unsustainable because of three main reasons: (i) power supply is unreliable, with frequent blackouts; (ii) electricity price is high (at least USD 40¢/kWh even under current low oil prices), and (iii) oil spills from fossil fuel transportation jeopardize the fragile ecosystem and in particular the second largest coral reef in the world (some oil spills have been reported during the last years).

### d) Other Rural Electrification Projects

Honduras, with the support of the IDBG and other development finance institutions, has invested and continues to invest substantial resources for rural electrification. The IDBG and the Nordic Development Fund have supported grid extension investments (with a total of USD 70 million). More recently, the Honduran Social Investment Fund (FHIS) is investing in renewable energy systems, first with the support of the World Bank (with a USD 12 million loan), and then with Korea Eximbank (a loan of USD 45 million, currently in negotiation).

[5] The service provided by the ENEE covers nearly 75% of the population, and isolated systems cover an additional 10%. Data provided by the Planning, Change and Business Innovation Management of ENEE. See: ENEE (2016). *Cobertura del Servicio de Energía Eléctrica en Honduras 2015*, http://bit.ly/ENEEcober15.

### e) Proposed Transformation

The proposed Program for the Universal Access to Energy (PAUE) will build on the institutional capacity of FOSODE, and complement existing efforts. Its moto will be *walking with energy towards social development in Honduras*, and it will have three components:

- *Isla Verde*. This component will incorporate 1.2 MW of energy capacity (with a blend of wind and solar technologies) in the Island of Guanaja.
- Energy Access for Rural Communities. This component will supply renewable energy systems for 4,500 households (located mainly in the West and South of the country).
- Support to the Use of Climate Finance for Low-carbon Cook-stoves. This third, smaller component, will support the work the GoH is doing to attract more international climate change resources for efficient and low-carbon cook-stoves. Considering that Honduras' NDC to the UNFCCC includes improved cook-stoves, and that the SREP Investment Plan contemplates this issue, there is an opportunity to use a portion of the resources of the IP to support this area.

The first two components are described below in more detail:

**Isla Verde**

This component will incorporate 1.2 MW of energy capacity (with a blend of wind and solar technologies) in the Island of Guanaja, with the aim of reducing the current consumption of fossil fuels. This component will benefit from the results of the Technical Cooperation activity "Assessment of the Renewable Resources in the Bay Islands" (ERIBA), which is being financed by the IDBG (with USD 590,000). The budget for this component is USD 3 million of SREP resources.

The current public-private partnership (PPP) model in these mini-grid systems involves the municipalities, as the owners of the distribution grids, and private companies who own and operate the small power plants under concessions given by the municipalities. The municipalities and ENEE, the public utility, are currently revising the terms of the PPPs so that they operate more efficiently and reliably, and with a higher participation of renewable energy sources.

Since the concession in Guanaja will expire at the end of 2017, this is an appropriate timing to set this island as a model for a new PPP arrangements. The availability of SREP resources is thus very timely to help in incorporating renewable energy into these systems.

**Energy Access for Rural Communities**

This component will provide PV systems for households in isolated communities that meet the following eligibility criteria:

- The community is not included in the grid extension plan during the next five years.
- Households are classified as in extreme poverty, per the national Poverty Index.

- The community project will comply with the existing laws national and municipal laws. In particular, it will have an environmental permit approved by the Municipal Environmental Unit (UMA).[6]

Given these eligibility criteria, it is expected that the program would target villages and hamlets in the departments of Lempira, Valle, Intibucá, El Paraíso (municipalities of the dry corridor), and Choluteca, located in the Western and Southern parts of the country.

The project will include the following steps:

- A baseline will be determined with the beneficiaries in the selected communities
- Awareness raising activities will be carried out with the municipalities.
- A compliance agreement will be signed between the municipalities and FOSODE, in order to ensure the sustainability of the project.
- A training plan will be implemented to ensure the good use of the solar systems.

The municipalities and the beneficiary communities will be directly engaged in the execution of the project. During the pre-investment stage a baseline will be determined with the beneficiaries. A commitment will be negotiated with the municipalities, and the minutes of such commitment will be presented. A compliance agreement will be signed between the municipalities and FOSODE, to ensure the sustainability of the project. Awareness raising activities will be carried out with the beneficiaries and the municipalities. Finally, the municipalities will contribute with labor in the survey of the socio-economic information of the beneficiaries of the communities, and with unskilled labor during installation.

The project will require a counterpart contribution from the beneficiary communities. The government will also be asked to participate through social programs in the co-financing of the operation and maintenance.

The project will provide training and support for the creation of community micro-enterprises that would be responsible for the maintenance and repair of solar systems. Training will address the good use of the system before, during and after installation.

With regards to the systems in schools and health centers, parents' associations and boards of trustees will be engaged.

The project will install 65-watt systems in households (with a 12-volt battery and 12/24 controller, 450-watt inverter for four 5-watt LED lights TV and DVD, and a power outlet to charge a phone and recorder), and 200 Watt systems for school and health centers (6-volt battery, 20-amp controller 12/24, 450-watt inverter for lighting, DVD, and disk player).

The project seeks to improve access to access; to create jobs; to foster the socioeconomic development of the rural communities; to conserve the local ecosystems, and to promote gender equity.

[6] Even though the environmental benefits of PV systems outweigh their negative impacts, the regulatory framework established the need to assess all possible impacts, for obtaining the environmental permit. This includes permanent landscape modifications; temporary impacts due to the clearing and cleaning of the surface of the installation, and the construction of civil works; and light pollution. Considering these possible impacts will enable reducing them and making the investment more sustainable.

### f) Business Model

The implementation of both sub-components will also consider the following approaches:

**Gender equity**. Through community participation, the program will seek to enhance the participation of both men and women in the workforce and training, as well as in the management of the financial resources.

**Community and Private Sector Participation**. The program will build on the participation of both community groups and the private sector. At the community level, municipalities and organized social groups (*Mancomunidades*, Water Boards, indigenous groups, family guides, boards and committees for public lighting, etc.) will be engaged during pre-investment and investment.

The program will also stimulate the participation of the private sector, in particular in three areas: (i) companies distributing solar equipment in rural areas; (ii) microcredit institutions, and (iii) professional installers.

### g) Implementation Readiness

ENEE, the public utility, is an autonomous body responsible for the generation, transmission and expansion of the electric power grid in Honduras. It has the sectorial capacity and the necessary experience for the execution of electric power projects.

ENEE also has experience with the implementation of off-grid renewable energy systems. For example, with the support of the German cooperation agency GIZ, and with the contribution from the communities, it provided lighting systems for 300 households in poverty conditions located around the El Cajón Dam and in the Municipality of Maraita, Francisco Morazán.

The FOSODE, located within ENEE, is an ideal platform to implement this program with its two components. It already has an annual budget of HNL 15 million as a direct allocation from the national budget, plus 1% of the distribution company's turnover (or about USD 9.5 million) for grid extensions. Having a capital injection for isolated projects is a perfect complement.

In order to strengthen the execution, FOSODE will sign cooperation agreements with the municipalities. These agreements will define the commitments, responsibilities and obligations of the parties, including activities aimed at the operation, maintenance and sustainability of the investments.

The IDBG has a long work experience with ENEE. It contributed to finance the Francisco Morazán (El Cajón) hydropower plant that started operating in 1985. More recently, it has approved USD 100 million in 4 key operations.[7]

### h) Rationale for SREP Financing

SREP resources will strengthen the capacity of FOSODE to implement renewable energy systems both for isolated households and for existing mini-grids. It is expected that in the future FOSODE will be able to channel resources in a sustainable way (similar to the resources it has today to finance grid extensions), without having recourse to external grant support.

[7] Energy Sector Support Program II - First Loan (HO-L1019, USD 28.6 M); Support for the Integration of Honduras in the Regional Electricity Market (HO-L1039, USD 22.9 M); Cañaveral-Río Lindo Hydropower Complex Rehabilitation and Uprating Project (HO-L1102, USD 23.0 M), and PPP Support to Rural Electrification and to the Energy Sector (HO0224, USD 25.0 M).

Given the poverty conditions on the isolated communities, and the high upfront costs required by the renewable energy systems, it is not expected that these systems can be financed sustainably by private agents without public intervention.

Given the ongoing efforts on rural electrification with RE through FHIS (see above), ERUS - PAUE will apply SREP resources in regions that are more difficult to reach, such as the Corredor Seco, and the Mosquitia in the Caribbean coast.

### i) Results Framework, Financing Plan, Timetable

**Results Framework**

Tables 11 to 13 show the results framework, financing plan, and approval calendar for ERUS - PAUE.

**Table 14. ERUS - PAUE Results Framework**

| Result Indicator | Unit | Target |
|---|---|---|
| Renewable energy capacity (Isla Verde) | MW | 1.2 |
| Avoided emissions* (Isla Verde) | Tons $CO_2e$/year | 1,970 |
| Beneficiaries (Energy Access) | Households | 4,500 |
| Co-finance | USD M | 4.6 |

* Assuming 25% of plant capacity factor, and an emission factor of 0.75 kg$CO_2e$/year

**Table 15. ERUS - PAUE Financing Plan (USD million)**

| Component | SREP | IDBG | ENEE | Benefi-ciaries | TOTAL |
|---|---|---|---|---|---|
| Isla Verde | 3.000 | 0.600 | | | 3.600 |
| Energy Access for Rural Communities | 4.331 | | 3.000 | 1.000 | 8.331 |
| Support to the Use of Climate Finance for Low-carbon Cook-stoves | 0.150 | | | | 0.150 |
| **TOTAL** | **7.481** | **0.600** | **3.000** | **1.000** | **12.081** |

**Table 16. ERUS - PAUE Approval Calendar**

| Milestone | Date |
|---|---|
| Submission to SREP | May 2017 |
| Expected SREP approval | June 2017 |
| Approval by IDBG | September 2017 |

* The expected approval date for the International Finance for Cook-stoves component is December 2017.

## ANNEX 2. UPDATED CONCEPT NOTE FOR THE ADERC - TRANSMISSION PROJECT

### a) Problem Statement

The power sector in Honduras has faced an important reform process in the last two years to strengthen its institutional capacity and its regulatory framework, to enhance operational efficiency and financial sustainability, and to adopt energy policies to secure security of supply.

This section presents the updated infrastructure investment needs in order to optimize system operation, increase the participation of NCRE and strengthen the integration with the regional electricity market.

**Current Situation of the Power Sector**

The electricity sector in Honduras has a high dependence on imported fossil fuels. In 2015 the country's installed electricity generating capacity was 2,348 MW, with an annual energy supply of 8,694 GWh, of which 54.8% was supplied from thermal power, 18.5% from State-owned hydroelectric power plants, 25% from NCRE sources (including privately-owned mini and small hydropower plants) and 1.7% from the MER.[8] Between 2013 and 2015, Honduras's annual power purchases in the MER grew by 63% and it is now the second largest importer in the MER.

For over a decade, the Honduran electricity sector has been characterized by serious institutional weaknesses that limit its ability to adequately formulate, plan, and oversee energy policy and to regulate, supervise, and operate the sector effectively. This has influenced the sector's operational and financial performance and limited the financial sustainability to an extent that affects the quality of service, resulting in high costs for the country in fiscal, development, and competitiveness terms. In 2014 the GoH made the decision to launch a process of reform in the sector and adopt the measures necessary to ensure its financial sustainability, operational efficiency, and security of supply, which have been gradually consolidated under the current administration.

**Reduction in Hydropower Generation**

In addition to its dependence on fossil fuels, the power sector of Honduras has also been heavily affected by prolonged draught seasons, strongly correlated with climate change (See Figure 1 below). Due to the reduction in the availability of water resources, ENEE is currently generating electricity in its hydropower plants with no profit—it is just recovering the operation and maintenance costs.

This vulnerability of the country's power system is set to increase. According to a study by German Watch,[9] Honduras is the most vulnerable country in the world. And according to a study by the IDBG and the Latin American Energy Organization (OLADE),[10] it is the most affected

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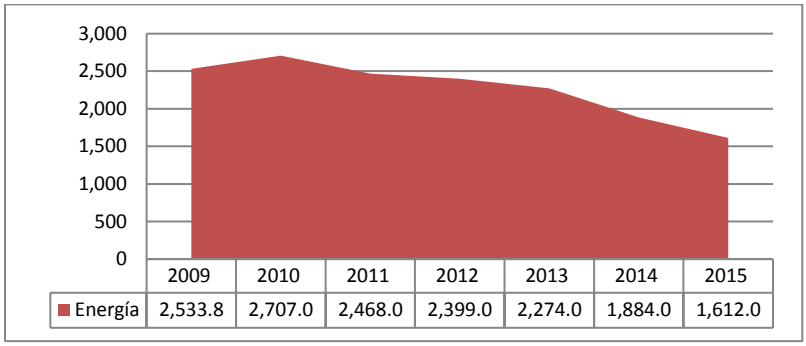
[8] As a signatory of the Framework Agreement for the Central American Electricity Market (*Tratado Marco del Mercado Eléctrico de América Central*), together with the other countries of the region, Honduras participated in the development of the Central American Electric Interconnection System (SIEPAC) project, which created physical transmission infrastructure as well as an institutional and regulatory framework for participation in the MER. During the period from January 2013 to June 2015, Honduras imported 512 GWh.

[9] Kreft, S. *et al.* (2016). *Global Climate risk index 2015*. German Watch.

[10] Esquivel, M *et al.* (2016). *Vulnerabilidad al cambio climático de los sistemas de producción hidroeléctrica en Centroamérica y sus opciones de adaptación*. IDB/OLADE.

country in the region in terms of reduction of hydropower production in the different climate scenarios.

**Figure 1. Energy Generation in State-Owned Hydropower Plants (GWh/year)**




Source: Statistics ENEE 2015, Planning Department.

**Expansion Needs**

National power utility's planning forecasts for electric power and demand for the next 15 years show an annual growth rate for both variables of around 4.3% for the next five years, which represents adding 80 MW/year. This growth is correlated with the country's economic growth, which has reached 3.5% during the last five years. In addition, the country faces the challenge of increasing the rate of electrification. The figures from the 2013 national census show a rate of electrification of 81%, which shows that Honduras still has an important gap to electrify the country.

**Progress on the Reform Process**

The GoH has made significant progress on the proposed reform process, beginning with the entry into force of the LGIE on 4 July 2014. This law is aimed at correcting the sector's institutional, regulatory, and operational weaknesses and boosting its fiscal impact. The reforms introduced by the LGIE include: (i) the creation of the CREE; (ii) the establishment of the OdS, responsible for ensuring continuous and secure electricity supply and system operation; (iii) the participation of the private sector in the distribution, aiming to reduce energy losses (since August 2016 a new private company is working in distribution); (iv) the modernization and restructuring of ENEE as a holding company with generation, distribution, and transmission subsidiaries; (v) the free access to electricity grids and the definition of charges for their use; and (vi) the creation of the FOSODE to finance social interest projects.

ENEE is currently the main actor in the electricity sector. This State-owned company owns almost all the country's transmission systems and 22% of its installed generating capacity. ENEE is the market's sole power purchaser and is responsible for operating the SIN and participating in the MER. Pursuant to LGIE, ENEE has embarked on a process of institutional change, adopting the necessary measures to ensure the technical and fiduciary skills of its human resources required for its proper operation, and unbundling the company into a generating company, a transmission company, and at least one distribution company, as state-owned companies with ENEE as parent holding company. LGIE highlights the importance of modernizing the new generating company so as to make full use of renewable resources and to compete actively in the market. For other activities, it is seeking the support of private operators.

The implementation of a series of measures has succeeded in reducing the impact of the ENEE's financial situation on the consolidated public sector deficit, which went from 1.8% of GDP at year-end 2013 to 0.3% of GDP at year-end 2015. The operating income versus current expenditure indicator has risen from 0.82 in 2013 to 0.86 in December 2014 and to 1.05 in December 2015. Both indicators exceeded the targets set in the stand-by agreement with the IMF. The main adjustment measures contributing to these results were: (i) correcting the bar rate adjustment formula for fuel prices (generation costs plus transmission charges), which implied a tariff increase; (ii) implementing a new tariff scheme system, since May 2016, to cover fixed costs, and introducing a multi-hour tariff scheme to encourage energy efficiency and adjustment correction based on fossil fuel cost variation; (iii) correcting the cross-subsidy in the residential sector, causing a rate adjustment in the 0 to 300 kWh/month consumption range; (iv) targeting the direct subsidy by reducing the original allocation by 60%; (v) reducing the workforce; and (vi) recovering the public and private sector past-due portfolio. Low international oil prices have helped achieving the first adjustments and enabled thermal energy to offer competitive prices. These measures, in conjunction with the distribution operator aimed at reducing distribution losses, will allow ENEE to balance its books in 2018, helping the sector achieve financial sustainability as required by the IMF's stand-by arrangement.

**Development of Non-Conventional Renewable Energy**

Despite being a country with rich renewable energy resources, the energy matrix of Honduras is highly dominated by imported oil products (it is the country in Central America with the highest dependence on fossil fuel imports). In 1994 the power sector law promoted the participation of the private sector for power generation, and, in a context of low fossil fuel prices during 1994 to 2005, this led the expansion of generating capacity to be mainly based on fossil fuel power plants. In 2007, power generation was 63% thermal, 32% public hydro and 5% of NCRE (mainly biomass).

In 2007 the GoH, concerned by the high participation of fossil fuel power generation and its price volatility, decided to launch the Renewable Energy Promotion Law.[11] As a result of this law the participation of NCRE grew to 12% in 2012. In 2013, an amendment to the 2007 Law was approved,[12] in order to offer additional incentives to PV power generation. Because of the incentives, total PV installed capacity in 2015 grew to 384 MW.[13] In the same year 75 MW of wind power and 59 MW of small hydro were added into the system. Since peak demand in Honduras is only 1,470 MW, the country currently has the highest (or one of the highest) relative share of solar PV in electricity generation.

In 2015, the installed capacity of NCRE grew 22% and the participation of NCRE in energy production reached 25%. The efforts of Honduras to diversify its energy matrix have been acknowledged by independent organizations. The Renewables 2015 and 2016 Global Status

[11] The incentives included compulsory dispatch of electricity produced in power generation facilities. Preferential price (110% of the marginal cost), and tax exemptions: on income, on sales, and on import tariffs. See: *Ley de Promoción a la Generación de Energía Eléctrica con Recursos Renovables*.

[12] The new incentives included an additional USD 3¢/kWh to the preferential price for the electricity produced on PV power facilities for the first 300 MW projects that would enter commercial operation before July 31st 2015, as well as a fee for installed capacity.

[13] Currently 124 MW of new PV projects are under construction.

Reports show Honduras as one of the top 3 countries in the world in terms of investments in renewable energy power per unit of GDP.

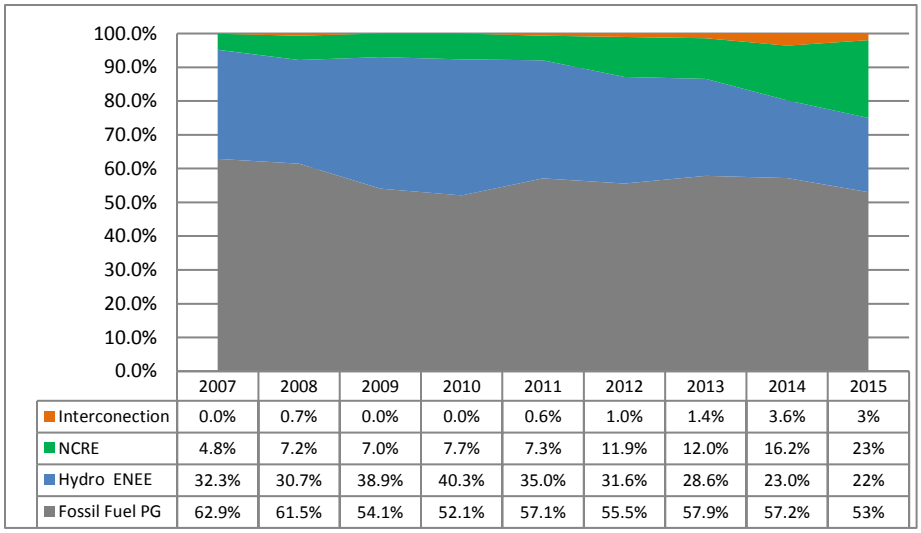
Table 17 below shows the changes in the installed capacity of the country, while Figure 2 below reports the percentage contribution of energy production. The figure shows that the contribution of thermal generation has been reduced in the last 8 years from 63% to 53% (gray color). It also shows the rapid growth of NCRE (green color) due to the Promotion Law, and the reduction in hydropower generation.

**Table 17. Total Installed Capacity in Honduras, 2007-2015, MW**

| **Power Source** | | **2007** | **2012** | **2015** |
|---|---|---|---|---|
| Government-owned hydropower | | 464.4 | 464.4 | 464.4 |
| Government owned Thermal | | 124.6 | 124.6 | 52.8 |
| Thermal private | | 860.7 | 880.8 | 905.3 |
| Non-conventional renewable | Private hydro | 38.5 | 73.4 | 218.1 |
| | Private biomass | 59.8 | 137.5 | 148.5 |
| | Private wind | | 102.0 | 175.0 |
| | Private solar | | | 383.7 |
| **Total Installed Capacity** | | 1,548.0 | 1,782.7 | 2,347.8 |

Source: Statistics ENEE 2015, Dispatch Center Division

**Figure 2. Relative Participation of Energy Sources in the Power Generation Mix**



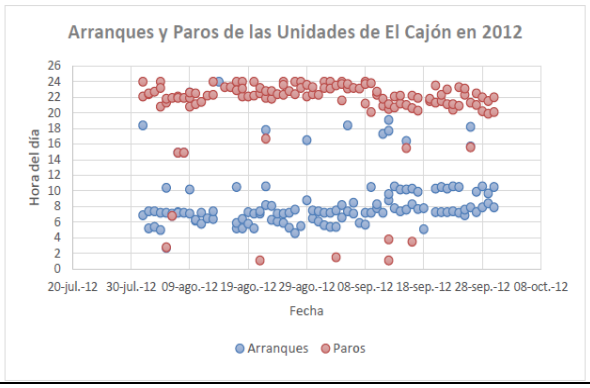
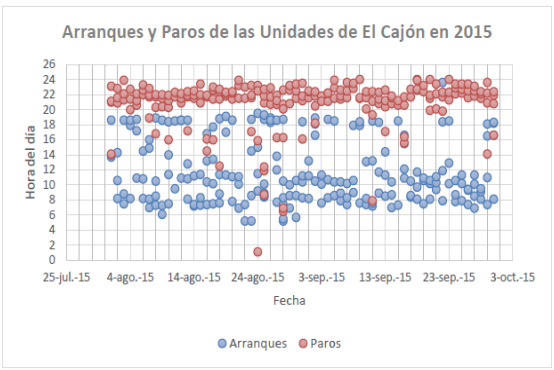

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|---|
| Interconection | 0.0% | 0.7% | 0.0% | 0.0% | 0.6% | 1.0% | 1.4% | 3.6% | 3% |
| NCRE | 4.8% | 7.2% | 7.0% | 7.7% | 7.3% | 11.9% | 12.0% | 16.2% | 23% |
| Hydro ENEE | 32.3% | 30.7% | 38.9% | 40.3% | 35.0% | 31.6% | 28.6% | 23.0% | 22% |
| Fossil Fuel PG | 62.9% | 61.5% | 54.1% | 52.1% | 57.1% | 55.5% | 57.9% | 57.2% | 53% |

**Stability Impacts of Variable Renewable Energy**

The incorporation of variable NCRE (solar photovoltaic and wind energy) contributes to diversify the energy matrix but it has some challenges in terms of the variability of the resources, which affects the stability of the power system, and in terms of a deficit of ancillary services, required for the normal operation of the power system. Taking into consideration the configuration of the power system, the facilities that can have the most important role in terms of their contribution with primary and secondary reserve controlling voltage and frequency in the system are the state-owned hydropower plants. Figure 3 below shows the changes in start-up and shut down of the largest stated-owned hydropower facility, namely, the 300 MW Francisco Morazán power plant, also known as "El Cajón". As the figure shows, due to the high share of

solar power in the national power system, the power generation units are now subject to more frequent start-up and shut down events, which deteriorate certain components of the system and reduce the lifetime of the turbines.

**Figure 3. Effect of PV in the Operation of El Cajón Power Plant**

| Start up and shut down El Cajon 2012 | Start up and shut down El Cajon 2015 |
|---|---|
|  |  |



Source: Maintenance Department, El Cajón power plant, ENEE.

**The Transmission Bottleneck**

**Figure 4. Transmission Map of Honduras**


| Resumen de Capacidad de transformadoresexistentes* | |
|---|---|
| Nivel de tensión (kV) | Capacidad MVA |
| 13.8 | 701.30 |
| 34.5 | 1375.00 |
| 69 | 358.45 |
| 138 | 1735.70 |
| 230 | 2479.30 |
| **Total de Capacidad instalada MVA** | **6649.75** |
| *Actualizado a 31 agosto 2016 | |

| Resumen de Longitud de Líneas de Transmisión existentes* | |
|---|---|
| Nivel de tensión (kV) | Longitud |
| 69 | 645.87 |
| 138 | 1029.34 |
| 230 | 1295.10 |
| **Total de longitud de líneas km.** | **2970.31** |
| *Actualizado a 31 agosto 2016 | |

Source: Engineering Division, ENEE

Despite large efforts by the GoH to promote NCRE, some barriers remain to increase the participation of NCRE in the country's energy matrix. One of the main barriers is the lack of adequate transmission infrastructure to connect NCRE power generation projects into the

national grid (see transmission map, Figure 4 above). The transmission system is lagging in capacity due to insufficient investments, and this has limited system expansion, the reliability of electricity provision, and the quality of service, preventing further progress in terms of loss reduction. As mentioned above, transmission infrastructure development is carried out by ENEE. The financial constraints faced by the utility have therefore delayed investments in transmission.

According to ENEE's Strategic Expansion Plan, the required investments for power transmission amount to more than USD 424 million, or about 2.3% of GDP (see Table 18 below). Weaknesses in the transmission system are affecting in particular the Northwestern region of the country, which has the highest potential for NCRE but poor transmission infrastructure, affecting the quality of service in the area and the highest rate of power interruptions and blackouts due to failures at the transmission level. The Northwestern region is a relevant area for economic development of the country, because it is the center of tourism development, and a concentrated area for industrial activity. Other regions of the country would also benefit from improved transmission systems, which would allow additional penetration of NCRE, such as solar photovoltaic and wind energy systems in the Southern part of the country.

**Table 18. Transmission Investment Plan (USD million)**

| Geographic Area | Substation | Transmission Line | Reactive compensation | TOTAL |
|---|---|---|---|---|
| North | 79.56 | 29.58 | 1.88 | 111.02 |
| West | 16.55 | 15.55 | 0.28 | 32.38 |
| Aguan Valley | 25.81 | 41.61 | 1.37 | 68.79 |
| Center | 59.41 | 43.55 | 1.36 | 104.32 |
| South | 14.17 | 9.60 | 0.18 | 23.95 |
| East | 9.78 | 73.53 | 0.29 | 83.60 |
| **TOTAL** | **205.28** | **213.42** | **5.36** | **424.06** |

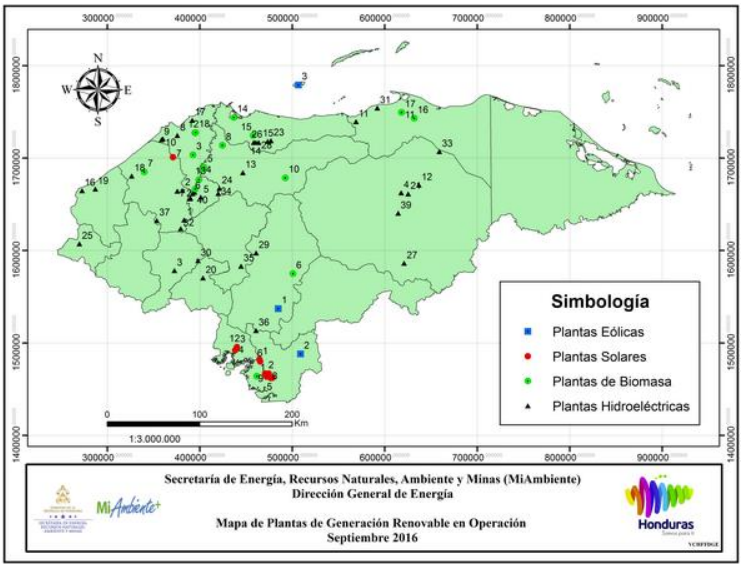
Source: Strategic Investment Plan of ENEE.

The bottlenecks in the system, which are related to the insufficient or old transmission infrastructure, have negative consequences for the dispatch of power production, and represent a barrier for increasing electricity access with good quality of service. Transmission development is therefore critical for expanding electricity coverage, improving the quality of service and allowing the connection of NCRE projects into the system.

The highest concentration of NCRE projects is in the North (small hydro and biomass power plants) and the South (wind and PV) of the country (see Figure 5 below). There are also other projects in the East and West regions of the country. Delays in investment in transmission infrastructure (which lies under the responsibility of ENEE) have produced uneconomic power dispatch and affected the financial viability of NCRE projects to interconnect into the national grid.

In addition, as part of the regional electricity market, Honduras is committed to increase the capacity of the Central American transmission backbone from 160 MW to the design capacity of 300 MW. This is a regional effort, and Honduras, El Salvador and Nicaragua have pending investments. Honduras must make investments of USD 92 million, which represent two thirds of the total investment in the region.

**Figure 5. Renewable Energy Projects in Operation in Honduras**




Source: Miambiente+

### b) Proposed Transformation

As explained above, the development of NCRE is a priority for the country: It enables Honduras to mitigate GHG emissions, to reduce its exposure to the volatility of fossil fuel prices, and to address the vulnerability of its hydropower capacity. In a context of dwindling water supply, intermittent technologies such as solar and wind become the ideal complement to the existing hydro infrastructure, as hydro ceases being a baseline source of electricity, and becomes a flexible complement to intermittent sources, operating to fill the gaps of wind and solar power. The fact that solar radiation is higher in the dry season (when the contribution of hydropower is the lowest) increases the complementarity. The development of NCRE is therefore a strategy that both *mitigates* climate change and provides *adaptation* benefits.

In the current context of an increasing RE generation capacity in the country, the GoH has identified transmission infrastructure as the critical bottleneck. The lack of key transmission infrastructure is in effect hampering the further penetration of NCRE, and it is having additional impacts on the reliability of supply.

Moreover, the development of transmission infrastructure will enable Honduras to strengthen its interconnections with its neighbors, in the framework of SIEPAC. The strengthening of SIEPAC's transmission backbone will enable the Central America region to increase its share of renewable energy, as it makes possible to dampen the effects of the variability of intermittent sources such as solar and wind, by compensating its variations within a larger system.

The ADERC transmission project will support the GoH in expanding and improving the power transmission infrastructure for the connection of the renewable energy generation sources to the SIN, and for strengthening the interconnection capacity with the MER.

The specific objectives of the ADERC transmission project are: (i) to ensure connection to the SIN with generation projects from NCRE sources; (ii) to diversify the country's generation matrix; (iii) to fulfil regional commitments to strength the national transmission system.

The ADERC transmission project is closely linked to the FOMPIER project (currently being redesigned). The specific objective of FOMPIER is to strengthen the regulatory, legal and planning framework to increase the participation of renewable energy, all by keeping as a premise the need to guarantee the financial sustainability of the power sector and to improve the functionality of the power sector.

By implementing the program Honduras will improve its productivity and contribute to the region-wide objective of increasing the share and commercialization of renewable energy.

The project will facilitate the access of 380 MW of clean renewable energy sources (PV, wind, and biomass) and contribute to an economic power dispatch.

**c) Strategic Alignment with Government Plans**

The Honduras Nation Plan (*Plan de Nación*) 2010-2022 establishes that 60% of the electricity production must be based on renewable energy sources in 2022, and 80% in 2038. In addition, the National Strategy on Climate Change considers the integration of renewable energy into the national grid as one of the strategic priorities for investment in infrastructure. The Strategic Government Plan has as goal to improve Honduras competitiveness through investments in clean energy and its integration in the MER.

Despite the interest for increasing the share of RE, preliminary assessments show that the first target could be viable but the second one in 2038 will demand an important effort and commitment from the GoH, as well as international support.

**d) Implementation Readiness**

ENEE, the public utility, is an autonomous body responsible for the generation, transmission and expansion of the electric power grid in Honduras. It has the sectorial capacity and the necessary experience for the execution of electric power projects.

**e) Rationale for SREP Financing**

The GoH has made an important contribution by approving and implementing the Promotion Law for power generation based on NCRE. The Law, however, has had a significant economic impact, due to the following reasons:

i) Preferential dispatch of electricity. Whereas the electricity cost from thermal fossil fuel power plants has a value of USD 8 to 9¢/kWh, ENEE has been compelled to dispatch in the first place NCRE with a price of USD 12-14¢/kWh (see Table 19 below). In addition to this, the government offers an incentive of USD 3.3¢/kWh to the electricity produced by PV power plants (if they entered operation before July 31st, 2015). This extra incentive represents USD 24 million/year;[14]

ii) Tax exemptions. Tax exemptions in 2014 for renewable energy projects accounted to USD 431 million (98.8% of the total exemptions in USD); and HNL 1,201 million (14.6% of exemptions using HNL). Both amounts combined represent 2.4% of GDP.

In this context, it is difficult for the GoH to continue facing the fiscal burden that represents the increase in NCRE capacity. By financing this critical transmission infrastructure, SREP would

[14] The figure was determined considering the additional incentive of 3.3 USD ¢/kWh for power generation.

assist Honduras in its effort to support the introduction of RE in a competitive power market, by helping the country to address the broader impacts of NCRE on the national economy.

**Table 19. Price of Electricity in the PPAs of NCRE projects**

| Technology | Price (USD¢/kWh) |
|---|---|
| Small Hydropower | 11 - 13 |
| Wind | 11 - 14 |
| Photovoltaic | 15 - 18.2 |
| Biomass | 11 - 14 |
| Geothermal | 11 |

### f) Results Framework, Financing Plan, Timetable

Table 20 below show the results framework for the ADERC - Transmission Project.

**Table 20. ADERC - Transmission Results Framework**

| Result Indicator | Unit | Target |
|---|---|---|
| Renewable energy capacity accessible through new transmission | MW | 380 |
| GHG emissions avoided | Tons $CO_2e$ / year | 584,000* |
| IDBG Co-finance | USD M | 70 |

* GHG emissions reductions assuming an installed capacity of 120 MW from wind, 18 MW from Biomass, and 242 MW from solar PV; capacity factors of 25% for solar PV and wind, and 50% for biomass; and a combined margin grid emissions factor of 0.67 $tCO_2e$ /MWh for Honduras based on Clean Development Mechanism estimates.

The total amount to be invested in the ADERC - Transmission project is USD 82 million, including USD 70 million of ordinary resources from the IDBG and USD 12 million of SREP grant and reimbursable resources (see Table 21 below).

**Table 21. ADERC - Transmission Financing Plan (USD million)**

| Funding Source | Amount |
|---|---|
| IDBG 2017 | 70 |
| SREP loan resources | 5 |
| SREP grant resources | 7 |
| **TOTAL** | **82** |

Finally, Table 22 below shows the expected approval calendar for this project. Due to the programming restrictions of the IDBG Honduras pipeline, the project will be approved in two phases, with the first phase utilizing the SREP grant resources, and the second phase utilizing the SREP reimbursable resources.

**Table 22. ADERC - Transmission Approval Calendar**

| Milestone | Phase 1 | Phase 2 |
|---|---|---|
| Submission to SREP | May 2017 | July 2017 |
| Expected SREP approval | June 2017 | August 2017 |
| Approval by IDBG | September 2017 | November 2017 |