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HONDURAS

SUPPORT FOR THE INTEGRATION OF HONDURAS IN THE REGIONAL ELECTRICITY MARKET
(HO-L1039) (3103/BL-HO)

SUPPORT FOR THE INTEGRATION OF HONDURAS IN THE REGIONAL ELECTRICITY MARKET AND FOR GRID ACCESS FOR RENEWABLE ENERGY

COMPLEMENTARY FINANCING
INVESTMENT GRANT
(HO-G1006)

PROPOSAL TO AMEND RESOLUTIONS DE-177/13 AND DE-178/13

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CONTENTS

ANNEXES	
Annex I	Evaluability note
Annex II	Results matrix

ELECTRONIC LINKS

REQUIRED

1. Multiyear execution plan
2. Monitoring and evaluation plan
3. Environmental and Social Management Report
4. Updated procurement plan

OPTIONAL

1. Technical annex I – Project profile for expansion of the El Progreso substation
2. Technical annex II – Project profile for expansion of the Toncontín substation, Stage I
3. Request for funding from the Scaling Up Renewable Energy Program in Low-income Countries (SREP)
4. Analysis of the contribution to competitive regional integration
5. Analysis of compliance with the Public Utilities Policy
6. Economic appraisal
7. Loan proposal for the project “Support for the Integration of Honduras in the Regional Electricity Market”
8. Progress in the power sector reform process

ABBREVIATIONS

CIF	Climate Investment Funds
CRIE	Comisión Regional de Interconexión Eléctrica [Regional Electrical Interconnection Commission]
EIRR	Economic internal rate of return
ENEE	Empresa Nacional de Energía Eléctrica [National Electric Power Company]
ESA	Environmental and Social Analysis
ESMP	Environmental and Social Management Plan
ESMR	Environmental and Social Management Report
GWh	Gigawatt hours
IRR	Internal rate of return
kV	Kilovolts
MER	Mercado Eléctrico Regional [Regional Electricity Market]
MVA	Megavolt amperes
NCRE	Nonconventional renewable energy
NPV	Net present value
OPGW	Optical ground wire
PCU	Project Coordination Unit
SCX	Strategic Climate Fund
SIEPAC	Central American Electrical Interconnection System
SIN	Sistema Interconectado Nacional [National Interconnected System]
SREP	Scaling up Renewable Energy Program in Low-income Countries

EXECUTIVE SUMMARY[1]

Project name:	Support for the Integration of Honduras in the Regional Electricity Market (HO-L1039) (3103/BL-HO) Support for the Integration of Honduras in the Regional Electricity Market and for Grid Access for Renewable Energy. Complementary financing for investment grant (HO-G1006).
Executing agency:	Empresa Nacional de Energía Eléctrica [National Electric Power Company] (ENEE)
Beneficiary:	Republic of Honduras
Direct beneficiaries:	ENEE
Source of financing:	Scaling up Renewable Energy Program in Low-income Countries under the Strategic Climate Fund (SCX)—one of the two of the Climate Investment Funds (CIF):[2] US$7 million.[3] Nonreimbursable financing.
Objective:	The objective of the complementary financing is to improve physical infrastructure conditions in Honduras to enable the country to participate effectively in the Regional Electricity Market (MER). This will be achieved by expanding two currently operating substations that are part of Honduras' national transmission system reinforcements, to increase the use of the Central American Electrical Interconnection System (SIEPAC) and to facilitate the integration of nonconventional renewable energy into the National Interconnected System. These additional works will fall under Component I of the program (3103/BL-HO). The additional resources (US$7 million) represent 30.5% of the original amount of financing (3103/BL-HO) for the program.
Execution and disbursement periods:	36 months.
Procurement:	Procurements financed in whole or in part with the proceeds of the complementary financing will follow the Policies for the

[1] This proposal was prepared in keeping with the guidelines set out in the document "Procedures for Processing Sovereign Guaranteed Operations" of April 2018.

[2] In February 2011 (document GN-2604-3), the Board of Executive Directors authorized the IDB to become an implementing agency of the SCX. A Financial Procedures Agreement was signed with the World Bank, the SCX administrator, on 17 February 2011. The SCX's SREP Subcommittee approved the use of SCX resources for this operation in August 2017, in accordance with the terms of that agreement.

[3] These resources are included in the 2017 Investment Plan for Honduras of the SREP Subcommittee. The SREP Subcommittee of the CIF (World Bank) approved the investment plan for purposes of authorizing its use by implementing agencies like the IDB.

	Procurement of Goods and Works Financed by the Inter-American Development Bank (document GN-2349-9) and the Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank (document GN-2350-9).
Special conditions:	**As conditions precedent to the first disbursement of the financing:** (i) see the conditions precedent to the first disbursement in the Legal Requirements section of the Environmental and Social Management Report (ESMR); and (ii) a resource transfer agreement is to be signed by the Republic of Honduras and ENEE that stipulates the transfer of resources and the parties' implementation obligations (paragraph 4.22). **As special conditions for execution:** (i) the special execution conditions in the Legal Requirements section of the ESMR are met; (ii) the Program Coordination Unit maintains the minimum staff currently responsible for execution of loans 3103/BL-HO and 3435/BL-HO (paragraph 4.23); (iii) an external supervisor is hired for the works to expand the Toncontín and El Progreso substations beginning from the start order and during execution and closing of the works contract; and (iv) until two years after the date of the last disbursement of the contribution, no substations to be financed under the project will be connected to any fossil-fuel thermal power plant with over 40 MW capacity, at the request of the SREP Subcommittee.
Exceptions to IDB policies and procedures:	None.

I. Request from the Government of Honduras for Complementary Financing for the Program of Support for the Integration of Honduras in the Regional Electricity Market (HO-L1039) (3103/BL-HO)

1.1 In official letter GG-478-2017 of 2 May 2017, the Empresa Nacional de Energía Eléctrica [National Electric Power Company] (ENEE) requested the support of the IDB in mobilizing US$7 million in grant resources provided for in the Investment Plan for Honduras[4] under the Scaling up Renewable Energy Program for Low-income Countries (SREP) of the Strategic Climate Fund (SCX)—one of the Climate Investment Funds (CIF) (paragraph 4.8). These resources would be complementary financing for the program "Support for the Integration of Honduras in the Regional Electricity Market" (HO-L1039) (3103/BL-HO).

1.2 This complementary financing will make it possible to expand two currently operating substations owned by ENEE that are vital to facilitating the integration of nonconventional renewable energy (NCRE) into the National Interconnected System (SIN). They are part of the national reinforcements of the Honduran transmission system, to increase the use of the Central American Electric Interconnection System (SIEPAC).

II. Description of Proposed Change

2.1 A US$7 million increase in financing for operation HO-L1039 (loan 3103/BL-HO) is being proposed, to finance expansion of the ENEE-owned El Progreso and Toncontín substations. Construction of these outputs aims to improve physical infrastructure in Honduras, enabling it to participate more effectively in the Regional Electricity Market (MER) and matches the objective of loan 3103/BL-HO. This increase represents 30.5% of the US$22.93 million in financing approved in 2013.

2.2 The additional resources will finance outputs under Component I of program HO-L1039. The works constitute national reinforcements of the SIEPAC transmission system. Tracking, environmental monitoring, audit, and evaluation activities will also be financed.

2.3 A period of 36 months from the effective date of the investment grant agreement will be needed for execution of the planned bidding, construction, and commissioning activities. The executing agency, ENEE, already has the designs, budgets, and bidding documents prepared to begin the works contracting process.[5] The results of the program financed with loan 3103/BL-HO will be the same as those originally proposed. Based on the environmental studies conducted by ENEE for the proposed works, and on the Environmental and Social Analysis prepared by an independent consultant engaged by the IDB pursuant to the Bank's environmental and social safeguards, expansion of the substations is not expected to produce significant adverse impacts. The program's Environmental and Social Management Report has been updated to reflect the requirements for these additional works, and to include an analysis of the progress of the management plans for the works under way.

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4 As part of the investment plan's "Grid-connected Renewable Energy Development Support" component.

5 The executing agency has the required capacity, as demonstrated in similar projects. It has carried out similar processes for Bank-financed investment works in the transmission sector, including those in the original program.

III. DESCRIPTION OF LOAN 3103/BL-HO

A. Description

3.1 The Bank approved the program "Support for the Integration of Honduras in the Regional Electricity Market" (HO-L1039) (3103/BL-HO) on 4 December 2013, for a total of US$22.93 million. The program's general objective is to support the start-up of commercial operation of one of the segments of the Central American Electric Interconnection System (SIEPAC) and to improve physical infrastructure conditions in Honduras to enable the country to participate effectively in the MER. The specific objectives are to: (i) reestablish the operating conditions of the only SIEPAC electric interconnection between Guatemala and Honduras, one of SIEPAC's central connections; and (ii) strengthen ENEE's operations and management to maximize the benefits of marketing electric power in the MER.[6] The program is being executing by ENEE and is divided into the following components:

3.2 **Component I. Investment in works related to the integration of Honduras into SIEPAC (US$19.7 million).** This component is financing the following transmission works: (i) La Entrada substation. This includes construction and commissioning of a substation with capacity to convert from 50 MVA to 230 kV/34.5 kV, along with its associated outgoing lines, in order to create a link between SIEPAC and the transmission network in Honduras; installation of three towers for the incoming transmission lines; improvements to distribution lines for the towns of La Entrada, Ruinas de Copán, Santa Rosa de Copán, and Sula (350,000 beneficiaries); and purchase of the land for construction of the substation; and (ii) completion of the following works: (a) two 69-kV transmission lines: Las Flores–Erandique (62 km) and Danlí–Chichicaste (33 km); (b) one 138-kV transmission line: San Pedro Sula Sur–Naco (23 km); (c) expansion of the Las Flores and Danlí substations; and (d) the Amarateca substation, with capacity to convert from 150 MVA to 230 kV.

3.3 **Component II. Strengthening ENEE for energy marketing in the MER (US$1.7 million).** To help ENEE enhance its management capacity, Component II includes: (i) creation of an electricity marketing and transactions unit at the ENEE National Dispatch Center to enhance the benefits from ENEE's marketing of energy in the MER; and (ii) improvement of ENEE's financial management for the proper handling of information on commercial transactions in the MER.

3.4 **Engineering, administration, audit, and evaluations (US$1.49 million).** This supports program supervision, including environmental monitoring, audits, and evaluations.

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[6] This operation was structured to address the problems caused by the action plan to improve energy service in western Honduras, where the ENEE had declared an energy emergency. The plan involved temporarily using part of the SIEPAC line, in the segment from Panaluya, Guatemala, to San Buenaventura, Honduras, and connecting a mobile 50 megavolt ampere (MVA) substation to 230/34.5 kV. This created problems with the regional regulatory authority, the Comisión Regional de Interconexión Eléctrica [Regional Electric Interconnection Commission] (CRIE), since the connection had been made outside the regional rules and regulations in effect. As a result, the CRIE did not approve the connection. With the Panaluya-San Buenaventura segment not in commercial operation, power transactions could not be made and the benefits of the MER could not be reaped, leading to economic losses for Empresa Propietaria de la Red (EPR) and for ENEE itself. This also jeopardized the financial sustainability and proper operation of the SIEPAC and of ENEE.

B. Program status

3.5 As of 26 April 2018, US$21.3 million, or 92.85% of the loan proceeds, had been disbursed. The main areas of progress in implementing the operation are described below:

3.6 **Component I. Financing of transmission works**. Construction is complete on the La Entrada substation, the program's largest project, taking up 57% of program resources. Installation was finalized and the substation went into commercial operation on 12 August 2017. This will strengthen regional energy marketing in the Panaluya, Guatemala–San Buenaventura, Honduras segment, and meet the requirements of the Regional Electric Interconnection Commission (CRIE) for the temporary connection originally made by ENEE.

3.7 The La Entrada substation will make the energy supply in western Honduras more reliable by reinforcing power transmission and distribution capacity, addressing the growing demand for power in that area resulting from the rise in tourism in the department of Copán[7] and from the development of the commercial and industrial sector, the latter being associated primarily with the expansion of small and medium-sized coffee manufacturers.[8] The substation will help connect renewable energy source generation projects, in keeping with quality and reliability criteria standardized by ENEE.[9]

3.8 The works mentioned in paragraph 3.2 were completed in their entirety, and the payments associated with financial closeout have been made. The entry into commercial operation of these works has helped strengthen the national transmission system, optimize operation of the grid, reduce congestion, and enhance the quality of electricity service in certain geographical areas of the country. The Amarateca substation, the country's largest, has improved its voltage and reactive power regulation in south-central Honduras, mainly in the departments of Olancho and El Paraíso,[10] and nationally overloading has been reduced on several transformers. Regulation has improved, making it possible for the Cañaveral–Río Lindo hydropower complex, the country's second largest, to send energy to the north, thus avoiding increased overloading of the El Progreso substation, which is strategic to the supply of power to northern Honduras. The completion of work on the Las Flores–Erandique and San Pedro Sur–Naco lines has provided greater access to electricity in northwestern Honduras.[11]

3.9 **Component II. Strengthening ENEE for energy marketing**. Various activities were carried out in the 2013-2017 period to build the capacity of ENEE for energy marketing with the region. The component's level of physical progress is 74% and financial progress is 60%. Progress on this component has been slower than for Component I because improvements to the National Dispatch Center will be made over 2018 and 2019 and implementation was postponed owing to ENEE reforms. Given its energy supply needs, Honduras was the region's second largest purchaser of energy in the MER during the period. The average amount of energy purchased

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7 Report on power needs of the tourism sector.

8 SNV reports in the context of the Multilateral Investment Fund program for sustainable coffee production.

9 Hydropower and geothermal projects are among those being connected.

10 The benefit to the El Paraíso area became evident when the Danlí–Chichicaste line became operational.

11 Through the rural electrification project financed by the Central American Bank for Economic Integration.

in the MER during 2014-2016, in both the contracts market and the spot market, increased by 90% over 2013, despite the ENEE's limited transmission infrastructure.

3.10 Electricity marketing capacity with the MER could have been even greater, but is limited by the lack of investments in national transmission system reinforcements,[12] owing to the power sector's shaky financial situation. This was one of the reasons why the Honduran government launched a sector reform process to regain financial sustainability and foster private sector participation in the power industry chain. As part of the reforms: (i) a new institutional framework was created in the electricity sector, involving an Energy Secretariat responsible for setting energy policy, a regulatory agency, and a System Operator. In each entity, clear roles have been established for the institutions, and resources have been allocated for their operation; (ii) ENEE's financial situation reduced the deficit from 1.8% of GDP in 2013 to 0.6% in December 2017. The drop could have been greater, but investments in generation have been made in the last year; (iii) private-sector participation in distribution was introduced, to effectively reduce losses, which has been one of the sector's main challenges; and (iv) Honduras' capacity to actively participate in the MER and diversify its generation matrix using renewable energies has been strengthened. Details on the status of the reform process are reported in optional link 8. Considering that the financial recovery of the power industry chain depends largely on results in the distribution subsector, however, the Honduran government has decided to invest in the transmission sector, as progress is reported in the loss reduction program in the distribution sector, which will help to improve ENEE's finances.

3.11 Among the main areas of progress, ENEE has been provided with tools and know-how to increase marketing capacity and has exchanged experiences with counterpart companies in the region to optimize system operation and market energy. The telecommunications and telemetry network has also been strengthened with the National Interconnected System (SIN). As part of the power sector reform process and the restructuring of ENEE, the electric transactions and marketing units planned for the National Dispatch Center are part of the new generation and operations management structure. Under the General Power Industry Act, a technical, not-for-profit System Operator was created, independent of the generation, transmission, distribution, and marketing agents. The responsibilities assigned to the System Operator include supervision and control of SIN operations. The ENEE's National Dispatch Center will provide services to the System Operator under an appropriate fee-for-service arrangement until the System Operator is capitalized and can perform the duties ascribed to it by the act.

3.12 **Engineering, administration, audit, and evaluations.** The engineering and construction supervision services provided have supported the executing agency in ensuring proper performance of the works under Component I. The Project Coordination Unit (PCU) has played an instrumental role in executing the portfolio of IDB-financed projects and has made it possible to support ENEE with implementation of the Cañaveral–Rio Lindo generation project, financed by the Japan International Cooperation Agency. The PCU has been strengthened over

[12] Honduras needs to make on the order of US$90 million in investments to enhance the capacity of SIEPAC, and, according to MER Board of Directors reports, is the country with the greatest financing needs. The country has requested the IDB provide support by financing approximately 50% of the required reinforcements.

time and enjoys credibility among national institutions. The program audits have resulted in clean opinions.

3.13 A social and environmental audit of the program works financed by loan 3103/BL-HO was conducted to determine the level of progress made to date in implementing the Environmental and Social Management Plan (ESMP) for those works. According to the audit, progress in this regard is satisfactory. An Action Plan (see ESMR) has been designed for some measures that are still pending, including reforestation plans, installation of bird deterrents, and finalization of the compensation process for easements for: (i) the 69 kV Danlí–Chichicaste subtransmission line; and (ii) the 69 kV Las Flores–Erandique subtransmission line. According to the information provided, this process is not yet complete due to 173 cases in which there is a Private Payment Commitment Document that leaves transfer of the negotiated amount pending until after the owner has demonstrated ownership of the land. Given that the nonexistence of property titles may not constitute a hindrance to compensation (operational policy OP-710), **ENEE will make these compensation payments to affected parties in compliance with IDB policy as a condition precedent to the first and second disbursements of this complementary financing**. The Action Plan includes consultations with those affected by the two lines and calls for a grievance redress mechanism.

3.14 **Main results:** To date, using 2012 as the baseline year, the program has produced the following results: (i) entry into commercial operation of the La Entrada substation, which brought the San Buenaventura–Panaluya segment into full commercial operation; (ii) increase in the marketing of energy in the MER from 310 GWh to 1,000 GWh, taking into account the approval of the temporary entry into commercial operation of the Panaluya–San Buenaventura segment following loan approval and completion of the required control and metering modifications to the mobile substation; (iii) increase in power capacity based on renewable sources in western Honduras from 22.5 MW to 85 MW; (iv) reduction in equivalent interruption time in the western region from 77 hours/year to 25 hours/year; (v) reduction in the average loading percentage in the western substations from 90% to 60%; and (vi) hiring of ENEE staff and training in electricity marketing and transactions.

IV. Rationale and Description of the Complementary Financing

A. Rationale

4.1 The additional works to be carried out with this complementary financing are fully consistent with the objectives of the program “Support for the Integration of Honduras in the Regional Electricity Market” (3103/BL-HO): to improve physical infrastructure conditions in Honduras so as to enable the country to participate effectively in regional electricity integration, to improve the reliability and quality of service, and to support the strengthening of ENEE’s institutional capacity, to enable Honduras to participate effectively in the SIEPAC/MER, and thereby support ENEE’s operational and financial recovery.

4.2 The expansion of the ENEE-owned El Progreso and Toncontín Stage I substations is part of the national reinforcement commitments[13] to which Honduras agreed with

[13] National reinforcements are all those national transmission system works that need to be carried out in a country in order to enable power to be transported internationally through the SIEPAC under the conditions for which it was designed. Currently, conditions in Honduras are such that this capacity is below 50%, owing to insufficient completion of reinforcements.

the MER within the framework of the SIEPAC. These commitments were ratified at the 16th Summit of Heads of State and Government of the Tuxtla Mechanism for Dialogue and Consultation, held in San José, Costa Rica on 29 March 2017. These works will help improve electricity exchanges by restoring the capacity of SIEPAC in the interconnection via Honduras and the availability of the regional power transmission system. Nationally, the expected benefits are that this expansion will: (i) adequately meet the country's growing demand; (ii) reduce the transformer saturation level at the Toncontín and El Progreso substations;[14] (iii) facilitate the integration of NCRE power plants (solar, wind, biomass, and hydropower) into the SIN and economically optimize the dispatching of electricity, which will contribute to improving ENEE's finances; and (iv) interconnect the national transmission system with the new NCRE power plants that are being developed within the substations' service area.[15]

4.3 The configuration of the SIN is such that Honduras' transmission system links the southern region of the country, where most of the thermal and NCRE power is generated, with the north and the Atlantic coast, which has the greatest industry demand and tourism development. Owing to delays in transmission investments, bottlenecks have formed in the SIN. These include the El Progreso substation, which feeds the north and the Atlantic coast, and the Toncontín substation, which feeds Tegucigalpa. The El Progreso and Toncontín substations are switching substations and will not transform energy from power generating plants.

4.4 The El Progreso substation is strategically important to the national transmission system because it connects the generating capacity of the central and southern parts of the country with the Sula Valley and the Atlantic coast. The Sula Valley is known for being home to much of the country's industrial and commercial activity, while the Atlantic Coast has major tourism development. Under the present conditions, the 230/138 kV transformers in the El Progreso substation are saturated, affecting the reliability of electricity service in the places is covers. The resulting supply interruptions force the industries and businesses served by the substation to have inefficient, expensive individual thermal generators to supply power. This practice negatively affects the productivity and competitiveness of the industrial, commercial, and tourism sectors.

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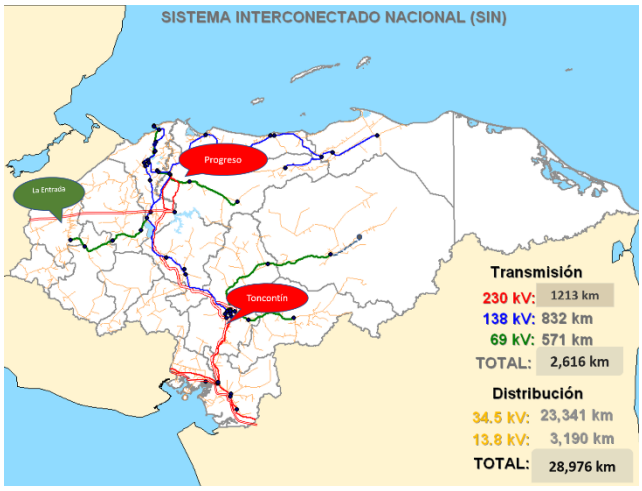
[14] Short-term Transmission and Generation Expansion Plan 2017-2023. ENEE. 2017.

[15] Increasing the share of renewable energy sources poses a significant challenge for the country's transmission system, as shown in a 2016 U.S. Department of State study on balance reserves and voltage control for the integration of renewable resources in Honduras. This study found that voltage problems in the northern part of the grid in Honduras worsened as solar power generation increased. Although this part of the grid is far from where solar power is generated, it is affected because solar power generation displaces more expensive generation in the north. As a result, the grid loses some of the vitally important voltage support that these displaced resources provide. Another factor that affects the voltage levels in the north is that the generation of solar power in the south increases the power flow through the south-north corridor from Agua Caliente (230 kV) to El Progreso (230 kV) and through a 138 kV network to San Pedro Sula, which reduces voltage even more in the north.

Figure 1. Transmission projects financed with loan 3103/BL-HO



4.5 Expansion of the Toncontín substation is needed to close the central 230 kV loop that supplies the metropolitan district (Tegucigalpa and Comayaguela) and to transport power to other parts of the country with high demand. This substation has 275,000 users in its service area.

4.6 Additionally, because the route of the SIEPAC line does not pass through all of Honduras, transmission must rely on national transmission circuits.

4.7 The pace of growth of NCRE generation has picked up in recent years, with the share of thermal generation dropping from 62% in 2010 to 40% in 2016, and expected to continue to decline in the years to come. Strengthening the transmission system will not only permit optimized dispatching of lower-cost power, but will also help NCRE power generated in different parts of the country to be brought into the SIN. Specifically, it will ensure the integration of NCRE generation projects located in central and northern Honduras at prices that will not hurt ENEE's finances.[16]

Figure 2. SIEPAC line

[16] The investments to be made by the program will enable competitively priced nonconventional renewable energy to be brought into the national interconnected system, thereby lowering average generating costs.

4.8 The proposed works are in line with the SREP Investment Plan for Honduras, which includes three components to be fully executed by the IDB: (i) Strengthening the renewable energy policy and regulatory framework (US$850,000);[17] (ii) Sustainable rural electrification (US$10,216,000);[18] and (iii) Grid-connected renewable energy development support (US$18,624,000).[19] This program's additional works fall under grid-connected renewable energy development support component of the investment plan and contribute to meeting the following objectives: (i) ensure the connection of NCRE projects to the SIN; (ii) diversify the energy matrix; and (iii) meet commitments to strengthen the national transmission system.

4.9 **Sustainability.** The works to reinforce the country's transmission system will contribute to the technical, operational, and financial sustainability of the energy sector (paragraph 4.15). ENEE will be responsible for operation and maintenance of the financed works and will cover its costs with rate charges.[20]

4.10 As part of the Bank's interventions in the country and its efforts to improve the sector's technical and financial sustainability, transmission investment operation HO-L1186, for US$155 million, is scheduled to be put before the Board of Executive Directors in the second quarter of 2018. The works to be financed include the construction of additional transmission reinforcements for the SIEPAC in northern Honduras. The government has considered keeping the transmission operation under ENEE and using public resources to finance priority investments that will help improve ENEE's financial situation—investments that have high returns, need to be up and running in the short term because of regional commitments and because the legal framework recognizes operation and maintenance costs, and provide for capital recovery.[21] Construction of these reinforcements will boost energy marketing in the MER and increase the share of NCRE in the generation matrix. In addition to the environmental benefits already mentioned, this year's transmission investments will help cut greenhouse gas emissions by approximately 584,000 tons of carbon dioxide per year.[22]

4.11 **Gender additionality.** The program provides that equitable access for men and women is to be promoted during hiring processes. Equitable access is also to be ensured with regard to management, consultations, and grievances during program execution (see ESMR).

4.12 **The Bank's country strategy with Honduras.** The program is consistent with the Bank's Country Strategy with Honduras 2015-2018 (document GN-2796), specifically its strategic objectives of: (i) improving the efficiency and quality of

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17 This will be implemented through the nonreimbursable technical-cooperation operation Support for the Sustainable Development of Renewable Energy in Honduras (HO-T1249), currently in preparation.

18 This is financing activities to replace conventional cookstoves with firewood-saving cookstoves (ATN/ME-14118-HO, GRT/SX-14119-HO), in execution, and the Program for Electrification in Isolated Areas (operation HO-G1247), currently in preparation.

19 NCRE generation projects (ATN/ME-14118-HO, in execution) and transmission projects for NCRE access to the SIN (1542/SF-HO, in preparation) are being financed. The resources for generation activities are reimbursable, while those for transmission are both reimbursable and nonreimbursable.

20 The existing rate structure offsets transmission and distribution charges.

21 The regulatory authority is working on a new transmission regulation that will allow private sector participation in financing and operating transmission projects in order to ease the fiscal pressure on the Honduran government of financing transmission works with public funds.

22 Value estimated in the updated SREP Investment Plan. This figure is subject to revision based on the results of the national emission factor validation, financed with resources from technical-cooperation operation ATN/OC-14905-HO.

electricity service and diversifying the power generation matrix; and (ii) increasing access to electricity service. It is also in line with the strategic line of action of the Plan of the Alliance for Prosperity in the Northern Triangle for stimulation of the productive sector, in that it will promote strategic investment sectors; modernize and expand infrastructure; and facilitate the reduction of energy costs and improvements in the reliability of electricity service.

4.13 **Strategic alignment.** The complementary financing is consistent with the Update to the Institutional Strategy 2010-2020 (document AB-3008) and aligned with the development challenges of: (i) productivity and innovation, as it promotes improvement of productive opportunities by enhancing the reliability of the power supply;[23] and (ii) economic integration, as it will modernize the existing energy infrastructure and thereby facilitate interregional electricity marketing. The complementary financing is aligned with the crosscutting areas of climate change and environmental sustainability because it involves the harnessing of renewable energy with low carbon dioxide emissions.

4.14 The complementary financing is aligned with the priority areas of the Bank's infrastructure strategy, Sustainable Infrastructure for Competitiveness and Inclusive Growth (operational policy OP-1012, document GN-2710-5), in that it supports the construction and maintenance of socially environmentally and sustainable infrastructure, thus enhancing quality of life. The complementary financing is consistent with the Energy Sector Framework (document GN-2830-3) in the thematic areas of energy security and energy sustainability, in that it advances: (i) regional integration through new infrastructure and interregional trading of electricity; and (ii) diversification of the energy matrix with renewable energy. The complementary financing is consistent with the Climate Change Sector Framework (document GN-2835-3) given that the proposed investments will reduce greenhouse gas emissions. In all, 100% of the SREP investment grant resources are invested in climate change mitigation activities, according to the joint methodology of the Multilateral Development Banks for tracking climate mitigation finance.[24] These resources contribute to the IDB Group's target of raising climate change related project financing to 30% of all operation approvals by 2020.

4.15 The proposed investments under this complementary financing are consistent with the objectives of the Public Utilities Policy (document GN-2716-6). The program meets the conditions on: (i) financial sustainability by: (a) improving physical infrastructure conditions in Honduras so as to enable the country to participate effectively in regional electricity integration; (b) improving the reliability and quality of service and helping to build ENEE's institutional capacity; and (c) facilitating the integration of NCRE into the SIN; and (ii) economic assessment, since there was a rigorous economic, financial, and technical feasibility analysis of the portfolio of projects to be financed. The program is consistent with the principles of supporting basic needs, transparency, financial sustainability, and a proper institutional

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[23] A survey conducted by the World Bank in Honduras found that at least 31% of companies consider the quality and continuity of electricity service to be a major constraint on their activities. *Enterprise Surveys data for Honduras 2010*. World Bank. Additionally, the National Competitiveness Strategy for Economic Growth and Social Welfare, in the 2010-2022 National Plan, establishes strategic areas that include: (i) increasing the percentage share of renewable power in the generation matrix through efficient use of available resources and reducing environmental impacts; (ii) reducing losses in power transmission and distribution, ensuring reliable, safe, and economical operations for the delivery of power; and (iii) broadening electricity coverage at the national level on the basis of planned sector development.

[24] 2015 Joint Report on Multilateral Development Banks' Climate Finance.

framework, by: (i) financing infrastructure works that improve electricity service reliability and quality; (ii) supporting the institutional strengthening of ENEE, in particular its commercial management; and (iii) unfolding in a context in which roles are separated between the Energy Secretariat as the steering agency, the regulator, and ENEE, as the SIN operator.

B. Objectives and components

4.16 The objective of the complementary financing is to improve physical infrastructure conditions in Honduras to enable the country to participate effectively in the MER. This will be achieved by expanding two currently operating substations that are part of Honduras' national transmission system reinforcements, to increase use of the SIEPAC and to facilitate the integration of NCRE into the SIN.

4.17 The complementary resources will be used keeping the original program components:

4.18 **Component I. Investment in works related to the integration of Honduras into SIEPAC.** The component includes the following works:

a. **Expansion of the El Progreso substation (US$4.3 million)**. This project consists of installing and commissioning a new 150 MVA-230/138 kV power transformer, construction of a full 230 kV bay with a one-and-a-half switch configuration, and connection of the current 50 MVA-230/34.5 kV distribution transformer to the step-down side of the new transformer in the existing 138 kV bay. The work will be performed on the site of the current substation, on land owned by ENEE. The El Progreso substation is currently part of the 230 kV SIN and provides a strategic power link connecting the central and southern parts of Honduras with the north and the Atlantic coast.[25] It has four transformers (one 50 MVA-230/34.5 kV distribution transformer, one 50 MVA-138/69 kV transformer, and two 150 MVA-230/138 kV transmission transformers) located in the city of El Progreso, in the department of Yoro. Because of the growing demand for power in the areas served by the El Progreso substation, the 230/138 kV transformers are very overloaded, and any damage to them would jeopardize the supply of power in its service area.

b. **Expansion of the Toncontín Stage I substation (US$2.5 million).** This project consists of installing and commissioning a new transformer with 150 MVA-230/138 kV capacity and its associated equipment at the Toncontín substation. The work will be performed on the site of the current substation, on land owned by ENEE. The Toncontín substation currently has two power transformers (one 44.8 MVA-230/13.8 kV distribution transformer that feeds the areas surrounding the substation; and one 84 MVA-230/138 kV transmission transformer that interconnects the La Cañada and Santa Fe substations while also feeding strategic loads in the Tegucigalpa–Comayaguela Central District). The Toncontín substation is in the city of Tegucigalpa, department of Francisco Morazán.

[25] The northern and Atlantic coastal regions of the country have the highest level of industrial and tourism development and account for most of the demand for electricity. To meet this demand, power produced in central and southern Honduras needs to be transported there. In the transmission system layout, the El Progreso substation is a nerve center that interconnects the power system.

4.19 **Engineering, administration, audit, and evaluations**. US$200,000 will be allocated to activities for the tracking, environmental monitoring, auditing, and evaluation of the proposed new investments.

Table 1. Summary budget (US$)

Category	IDB/SREP	Total US$
Component 1: Investment in works related to the integration of Honduras into SIEPAC	**6,800,000**	**6,800,000**
1.1 Toncontín substation	2,500,000	2,500,000
1.2 El Progreso substation	4,300,000	4,300,000
Engineering, administration, audit, and evaluation	**200,000**	**200,000**
Engineering and supervision	65,410	65,410
Management support	42,590	42,590
External environmental audit and evaluations	92,000	92,000
TOTAL	**7,000,000**	**7,000,000**

C. Results indicators

4.20 The program's Results Matrix remains unchanged in terms of the objective and focus of the loan operation, providing for conceptual and technical continuity with regard to loan 3103/BL-HO. The complementary financing will allow the following results to be added to the program, reflecting the outputs and outcomes that will be financed with the additional resources from SCX/SREP: (i) increased share of NCRE in the generation matrix and enhanced reliability of the national power system; (ii) reduced average percentage loading on the transmission transformers at the El Progreso substation; and (iii) reduced percentage loading on the transmission transformer at the Toncontín substation.

D. Financing instruments

4.21 The financing instrument is an investment grant. The source of financing is the SCX (document GN-2604-3), via the SREP. The SREP Subcommittee approved the use of resources for this complementary financing in August 2017, as part of the Subcommittee-approved SREP Investment Plan for Honduras.

E. Execution arrangements

4.22 The beneficiary of the grant will be the Republic of Honduras, and the executing agency will be ENEE. Given that ENEE is a State-owned company and a legal entity in its own right, the loan contract will require a resource transfer agreement between the Honduran government and ENEE that spells out: (i) how resources will be transferred; (ii) ENEE's commitment to implement project activities in accordance with the agreement's terms and conditions; and (iii) a pledge to use contributed resources solely for the project. **As a condition precedent to the first disbursement, a resource transfer agreement must be signed by the Republic of Honduras and ENEE, stipulating the transfer of resources and the parties' implementation obligations.**

4.23 The activities to be financed with this complementary financing will be implemented using the same arrangements used for loan 3103/BL-HO, via the Project Coordination Unit (PCU). The PCU will consist of the following minimum staff: a general coordinator, a technical coordinator, a monitoring specialist, a financial

specialist, a procurement specialist, and an environmental specialist,[26] the specifications for whom will be laid out in the Operating Regulations for the program financed with resources under loan contract 3103/BL-HO. As special conditions for execution: (i) the special execution conditions in the Legal Requirements section of the ESMR are met; (ii) the Program Coordination Unit maintains the minimum staff currently responsible for execution of loans 3103/BL-HO and 3435/BL-HO in order to ensure that the necessary personnel is on hand at all times for execution of this complementary financing; (iii) an external supervisor is hired for the works to expand the Toncontín and El Progreso substations beginning from the start order and during execution and closing of the works contract, to ensure compliance with the technical specifications, work quality, construction time, and budget; and (iv) until two years after the date of the last disbursement of the contribution, no substations to be financed under the project will be connected to any fossil-fuel thermal power plant with over 40 MW capacity,[27] at the request of the SREP Subcommittee.

4.24 According to the program's disbursement plan, the execution period will be 36 months, with expenditure flows following the projected timeline in Table 2.

Table 2. Projected disbursements (US$ thousands)

	Year 1	Year 2	Year 3	Total
Disbursements	2,100	3,500	1,400	7,000
%	30	50	20	100

4.25 **Monitoring and evaluation**. The complementary financing will be subject to the monitoring and evaluation plan, which supplements the monitoring and evaluation plan for loan 3103/BL-HO, to reflect the addition of new resources. Monitoring will be based on: (i) a procurement plan; (ii) a multiyear implementation plan; (iii) annual work plans; (iv) annual verification that the targets set out in the Results Matrix (Annex I) are met; and (v) semiannual reports covering: (a) activities carried out during the period, implementation status, problems encountered, and means of addressing them; (b) an evaluation of the results matrix, procurement plan, annual work plan, and risk analysis; and (c) the Bank's project monitoring report analysis, for which fulfilment of the targets for the output and outcome indicators in the results matrix will be evaluated. Execution during the period will be evaluated and plans for the next six-month period will be included.

4.26 The monitoring and evaluation plan includes evaluation mechanisms for this complementary financing that are designed to verify that targets set out in the results matrix are met. ENEE will therefore submit: (i) a midterm evaluation 60 calendar days from the date on which 50% of the proceeds of the complementary financing were disbursed and justified, or 20 months into execution, whichever is first; (ii) an ex post cost-benefit economic evaluation within 12 months after the end of the program. The ex post evaluation will be conducted once the original loan operation and the complementary financing are disbursed; and (iii) a final evaluation 60 days

[26] The inclusion of an environmental specialist has helped enhance the capabilities of the execution unit in terms of environmental and social matters, where it had shown some institutional weakness in the design stage of loan 3103/BL-HO. With execution of loans 3103/BL-HO and 3435/BL-HO and the World Bank's PROMEF project, the unit's capabilities have been strengthened, as have the social-environmental capabilities of the executing agency.

[27] ENEE's expansion plans do not call for the Toncontín and El Progreso substations to connect to thermal power plants in the next five years.

from the date on which 100% of the proceeds of the loan and of the complementary financing have been disbursed.

4.27 **Procurement.** Procurements financed in whole or in part with the proceeds of the complementary financing will be reviewed on an ex ante basis, and will adhere to the Policies for the Procurement of Goods and Works Financed by the Bank (document GN-2349-9) and the Policies for the Selection and Contracting of Consultants Financed by the Bank (document GN-2350-9).

F. Risks from implementing the complementary financing

4.28 **Fiduciary considerations**. ENEE has experience implementing Bank projects and has staff trained in fiduciary matters; it has been the executing agency for loans 1584/SF-HO (closed), 2016/BL-HO (closed), 3103/BL-HO (supported with this complementary financing), and 3435/BL-HO, in execution. The risk analysis performed following the project risk management methodology in May 2017 and updated in January 2018 was also taken as input. ENEE will have the PCU to facilitate execution of the complementary financing. The PCU is currently in charge of executing loans 3103/BL-HO and 3435/BL-HO and has broad experience and proven capabilities. It includes executing agency staff and was set up within the executing agency in 2008, for execution of the first two loans (paragraph 3.12).

4.29 **Environmental and social considerations**. Based on the potential environmental and social impacts, this has been classified as a Category B operation. Accordingly, an Environmental and Social Analysis (ESA) and an Environmental and Social Management Plan (ESMP) were prepared for the works to expand the El Progreso and Toncontín substations, and both have been posted on the Bank's website. The works will be carried out on land already developed with infrastructure, do not necessitate the purchase of additional land, and will not affect natural habitats or indigenous communities, and are therefore considered low-complexity works. Nevertheless, given their proximity to residential areas, the noise and movement of machinery could disturb the neighborhood. Meaningful consultations were held for the El Progreso substation (28 June 2017, 64 participants) and the Toncontín substation (12 June, 60 participants). The two corresponding consultation reports have been posted on the Bank's website. As regards the Toncontín substation, the participants requested another meeting to include technical specialists in electromagnetic fields. In response, ENEE engaged a specialized consulting firm to conduct an electrical and magnetic field study in Toncontín. The study was presented at an informational meeting on Friday, 9 February 2018, attended by 17 residents of nearby residential neighborhoods who were interested in the project. Participation was deemed significant, as the neighbors who filed a complaint in the first consultation were invited. During the activity, the findings confirmed that the electric field intensity and magnetic field density in the areas around the perimeter fence and the power line easement are below the levels regulated by the International Commission on Non-Ionizing Radiation Protection. The meeting attendees were satisfied with the presentation and said they were in agreement with the project.

4.30 The ESMP has been included in the ESA, spelling out the mitigation measures for the works, who is responsible for implementing them, and the projected budget. For the construction stage, these measures include prohibiting installation of electrical equipment containing polychlorinated biphenyls; establishing a grievance redress mechanism; restricting work hours to avoid disturbing neighboring communities; and establishing protocols and drills for accident management and response to electrical

hazards, fires, or explosions. Measures have also been identified as necessary in order to adjust current operation of infrastructure in terms of environmental management and occupational safety and health, to reduce risks for workers and promote the investments' sustainability, such as installing missing grounding poles, rerouting cables, and replacing the gravel layer on substation floors. Other measures will verify that oil spills have been treated, and that procedures are in place for frequent verification, early detection, and treatment. These measures must be carried out before the works are awarded. Hurricanes were also identified as a disaster risk. Both the contractor and ENEE need to include this risk in the substations' contingency plans, to prevent and minimize potential damage and incidents involving electrical failures, fires, or explosions resulting from these events.

4.31 A social and environmental audit identified certain social/environmental liabilities from previous programs that remain unresolved. ENEE has presented an action plan to address the 173 cases in which compensation is pending for the Danlí-Chichicaste and Las Flores-Erandique transmission lines (from loans 1584/SF-HO and 2016/BL-HO), as a result of joint ENEE-IDB work to find a compensation solution for all cases that was consistent with Honduran law and IDB safeguard policies. The plan lists activities, responsible parties, and concrete deadlines and includes actions that must be taken prior to the first and second disbursements. An action plan has also been agreed for the study and installation of bird-protection devices on transmission lines and implementation of pending reforestation measures. To ensure compliance, for each disbursement, progress on these actions will be verified, in accordance with the agreed timeline.

4.32 **Other risks.** The risk assessment identified: (i) failure to grant timely tax exemptions under the Renewable Source Generation Incentives Act, which applies to transmission projects; and (ii) delays in processing easements that represent environmental liabilities from loan 1584/SF-HO. The following measures will mitigate these risks: (i) ENEE's Office of Legal Counsel will promptly work with the Secretariat of Finance and the Revenue Administration Service to obtain the tax exemptions; (ii) the Bank's Environmental and Social Safeguards Unit will provide support for timely processing of easements and will work with different government agencies to get easement payments processed; and (iii) the Bank will provide close technical support through technical assistance and project supervision.

4.33 **Financial and economic viability.** An updated ex ante financial and economic appraisal for the program was done to appraise the investment of the US$7 million in complementary financing. First, based on the technical options identified as potential solutions to the limitations of the substations involved, an evaluation was performed to analyze the complexities and risks of each potential viable solution that could create the infrastructure needed to meet increased demand in the area; provide reliable, high-quality service to users; and reduce the system's transmission losses. Second, a financial appraisal performed for these alternatives provided information as to the best alternative from the standpoint of investment returns, capital recovery, and the cost-benefit ratio. The alternative to be implemented under the program was selected of the basis of these financial results. The solution selected for the El Progreso substation is financially profitable, with an internal rate of return (IRR) of 49% and a net present value (NPV) of US$17 million. The solution selected for the Toncontín substation has an NPV of US$6.2 million and an IRR of 35%.

4.34 Next, the alternative selected for each case underwent an economic appraisal. The economic analysis validated the selection of the technically and financially most

efficient alternative. The cost-benefit analysis identified the benefits of project implementation as being a reduction in unserved energy, valued as the net cost of failures. The economic costs are the investment and the difference in the respective operation and maintenance costs. Also, losses are lower owing to enhanced stability and reduced overloading. Evaluating the benefits for the two projects involved estimating the effect of service reliability improvements in the substations' service areas. The analysis demonstrated that there would be a large positive financial and economic impact resulting from strengthening the transmission system, making it more robust and reliable, which in turn will improve the quality of the transmission grid, such that operating conditions and availability of the power grid are maintained and making possible a larger volume of trading via the MER. The consolidated economic results of the two projects yielded an economic internal rate of return (EIRR) of 55% and an NPV of US$20.4 million. Table 3 summarizes the results of the economic appraisal and sensitivity analysis for each project.

Table 3. Summary of economic appraisal and sensitivity analysis

	El Progreso substation		Toncontín substation	
	NPV (US$ millions)	EIRR (%)	NPV (US$ millions)	EIRR (%)
Base case	18.58	70.9	1.8	24.2
↑ 20% Investment cost	17.64	59.6	1.3	19.3
↑ 20% O&M cost	18.41	70.3	1.7	23.6
↓ 10% Reduction in failures	16.23	63.7	1.4	21.3
↓ 20% Cost of failures	13.93	57.3	0.9	18.3

V. PROJECT TEAM RECOMMENDATION

5.1 Based on the above, and considering that the complementary financing resources were not envisaged in the formulation of loan 3103/BL-HO, originally approved by the Bank's Board of Executive Directors, and that these resources come from the SCX, the team recommends that the Board, pursuant to document DR-398-17 (Regulations of the Board of Executive Directors of the Inter-American Development Bank) and paragraph 6 of document CS-3953-2 (list of matters that the Board may consider by the short procedure), use the short procedure to adopt the Proposed Resolution attached hereto as Appendix I, for purposes of amending Resolutions DE-177/13 and DE-178/13 and complementing the financing provided therein with the complementary financing resources from the SCX's SREP, and authorize the President of the Bank to: (i) sign such agreement(s) as may be necessary with the Republic of Honduras, as beneficiary, for purposes of granting complementary financing from SCX/SREP resources for execution of the activities set out in this document; and (ii) adopt whichever other measures as may be necessary to execute the complementary financing referred to in item (i) of this paragraph.

SUPPORT FOR THE INTEGRATION OF HONDURAS IN THE REGIONAL ELECTRICITY MARKET

(HO-L1039) (3103/BL-HO)

COMPLEMENTARY FINANCING NON-REIMBURSABLE CONTRIBUTION FOR

SPECIFIC PROJECTS

TRANSMISSION PROGRAM FOR RENEWABLE ENERGY IN WEST AND NORTH ZONES (HO-G1006)

DEM scores: SPD has reviewed the complementary financing proposal and has concluded that changes to the project do not affect its evaluability. Therefore, the DEM matrix of the original operation and its score remains valid.

Evaluability Assessment Note

The complementary financing seeks to improve the physical infrastructure conditions of Honduras that allow an effective participation in the MER, by expanding two existing and operational substations that are part of the national reinforcements of the transmission system of Honduras, to enhance the use of the SIEPAC and facilitate the incorporation of NCRE in the SIN. The document highlights that, due to the lag of investments in transmission, bottlenecks have formed in the SIN. Among them are located the Progreso SE that feeds the north and Atlantic littoral, and Toncontín that feeds Tegucigalpa. With the Project, it is expected to improve the electrical exchanges by recovering the capacity of the SIEPAC in the interconnection via Honduras and the availability of a regional electric transmission system.

The vertical logic of the original project is not affected by the activities associated with complementary financing. There are changes in the results matrix, and both the new product and outcome indicators are appropriate for the proposed modification, and do not alter the original vertical logic of the program.

The project presents an update of the economic analysis that appears as appropriate, and which shows positive financial and social returns of the two SEs that will be built with complementary financing.

Additionally, an updated version of the Monitoring and Evaluation Plan is presented, which is adequate.

Development Effectiveness Matrix			
Summary			
I. Strategic Alignment			
1. IDB Strategic Development Objectives	**Aligned**		
Lending Program	**i) Lending to small and vulnerable countries, ii) Lending to support climate change initiatives, renewable energy and environmental sustainability, and iii) Lending to support regional cooperation and integration.**		
Regional Development Goals			
Bank Output Contribution (as defined in Results Framework of IDB-9)	**i) Km of electricity transmission and distribution lines installed or upgraded, ii) Regional and sub-regional integration agreements and cooperation initiatives supported, and iii) Number of cross border and transnational projects supported (infrastructure and customs, etc).**		
2. Country Strategy Development Objectives	**Aligned**		
Country Strategy Results Matrix	**GN-2645**	**i) Increase the share of renewable sources in the electric power grid, and ii) Improve the operational and commercial efficiency of the electricity sector.**	
Country Program Results Matrix	**GN-2696**	**The intervention is included in the 2013 Country Program Document.**	
Relevance of this project to country development challenges (If not aligned to country strategy or country program)			
II. Development Outcomes - Evaluability	**Highly Evaluable**	**Weight**	**Maximum Score**
	8.9		**10**
3. Evidence-based Assessment & Solution	**9.7**	**33.33%**	**10**
4. Ex ante Economic Analysis	**10.0**	**33.33%**	**10**
5. Monitoring and Evaluation	**7.1**	**33.33%**	**10**
III. Risks & Mitigation Monitoring Matrix			
Overall risks rate = magnitude of risks*likelihood	**Low**		
Identified risks have been rated for magnitude and likelihood	**Yes**		
Mitigation measures have been identified for major risks	**Yes**		
Mitigation measures have indicators for tracking their implementation	**Yes**		
Environmental & social risk classification	**B**		
IV. IDB´s Role - Additionality			
The project relies on the use of country systems (VPC/PDP criteria)	**Yes**	**Financial Management: i) Budget, ii) Treasury, and iii) Accounting and Reporting. Procurement: Information System.**	
The project uses another country system different from the ones above for implementing the program			
The IDB's involvement promotes improvements of the intended beneficiaries and/or public sector entity in the following dimensions:			
Gender Equality			
Labor			
Environment			
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project			
The ex-post impact evaluation of the project will produce evidence to close knowledge gaps in the sector that were identified in the project document and/or in the evaluation plan			

The Electrical Interconnection System for Central American Countries (SIEPAC) seeks to put in service the first regional electric transmission system that will integrate power grids of the six Central American countries and develop the Regional Electricity Market (MER), becoming a seventh market overlapped with the six national markets. SIEPAC/MER exchanges remained relatively constant until mid-2013, when MER´s Regulations were enacted. From that date on they have increased and are expected to reach 1,000 GWh in 2014, nearly three times those registered in June 2013, and targeting of transactions in the 3,000-5,000 GWh range.

SIEPAC/MER faces several challenges to achieve these milestones, one of them being the integration of the Panaluya -Guatemala (GU) - San Buenaventura - Honduras (HO) tranche. In this section, due to local power supply emergency issues, connections have been made outside the regional rules - by installing a mobile sub-station - which prevents regional commercial operation of the section Panaluya (GU)-San Buenaventura (HO). This situation also affects the financial sustainability and the good functioning of electric regional integration in Central America.

The solution to the problem of connecting the National Electricity Company of Honduras (ENEE) to the SIEPAC line in this section replacing existing the mobile substation, with a new substation called La Entrada, which would normalize the operation of this section of SIEPAC, closing a "ring" among the systems in Guatemala, El Salvador and Honduras. The projects that are currently funding activities towards regional electrical integration, no longer have sufficient resources for completion. The diagnosis is presented articulately, with enough empirical evidence.

In connection with the diagnosis, it is proposed to finance investments in order to integrate Honduras to SIEPAC - which mainly includes funding for substation La Entrada, additional funding to ongoing investments and funding to strengthen commercial management. This substation is considered vital to close the link between the SIEPAC and the Honduras transmission network, normalizing electricity related commercial transactions between Guatemala and Honduras, including electricity transactions with the rest of the countries of Central America.

The construction of the proposed works will result in operational and sustainability improvements which are expressed in the results indicators, and these operational improvements will effectively integrate Honduras - in its north-western section – to the SIEPAC. The documentation contains a full economic analysis. The monitoring and evaluation plan proposes the implementation of an ex-post cost-benefit analysis.

RESULTS MATRIX

Program objective	The objective of the complementary financing is to improve physical infrastructure conditions in Honduras so as to enable the country to participate effectively in the Regional Electricity Market. This will be achieved by expanding two currently operating substations that are part of Honduras' national transmission system reinforcements, to increase the use of the Central American Electrical Interconnection System and to facilitate the incorporation of nonconventional renewable energy into the National Interconnected System.

Outcome indicators	Unit of measure	Baseline 2017	End-of-project target	Source of information	Verification frequency
Average percentage load on the transmission transformers at the El Progreso substation	Percentage %	98.93%	76.63%[1]	Energy Dispatch Management Office	Annual
Percentage load on the transmission transformer at the Toncontín substation	Percentage %	112%	56%[2]	Energy Dispatch Management Office	Annual
Renewable energy power generation / total generation in the national grid	Percentage %	49%	53%	Energy Dispatch Management Office	Annual
Increase in supply of renewable energy as a result of avoiding transmission bottlenecks	GWh/year	0	70	Energy Dispatch Management Office	Annual

Output indicators	Baseline 2017	Year 1	Year 2	Year 3	End of project	Source of information
Component I. Investment in works related to the integration of Honduras into SIEPAC						
El Progreso substation expanded from 300 MVA to 450 MVA.	-	-	-	1	1	System Operation Management Office / System Operator-Market Operator, ENEE Engineering Division
Toncontín Stage I substation expanded from 75 MVA to 150 MVA.	-	-	-	1	1	Report by supervision firm/ENEE

[1] Check with the Energy Dispatch Management Office to confirm the maximum load to which the transformer bank will be subjected, including the new 150 MVA transformer, for a total transformation capacity of 450 MVA.

[2] Check with the Energy Dispatch Management Office to confirm the maximum load to which the new 150 MVA transformer will be subjected.

SUPPORT FOR THE INTEGRATION OF HONDURAS INTO THE REGIONAL ELECTRICITY MARKET AND THE CONNECTIVITY OF RENEWABLE ENERGY TO THE GRID

HO-G1006

CERTIFICATION

The Grants and Co-Financing Management Unit (ORP/GCM) certifies that the operation received the letter of commitment for financing by the **Strategic Climate Fund (SCX)** for up to **US$7,000,000** confirmed by Goritza Ninova (ORP/GCM), August 3, 2017.

Certified by: Original Signed — April 27th, 2018

Sonia M. Rivera — Date
Chief
Grants and Co-Financing Management Unit
ORP/GCM

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-__/18

Honduras. Complementary Investment Grant GRT/__-_____-HO
Support for the Integration of Honduras in the Regional Electricity Market and for Grid Access for Renewable Energy

Amendment of Resolutions DE-177/13 and DE-178/13
Support for the Integration of Honduras in the Regional Electricity Market (3103/BL-HO)

WHEREAS:

The resources of the Scaling Up Renewable Energy Program in Low Income Countries (SREP) of the Strategic Climate Fund ("SCX") were not foreseen in the original formulation of the program "Support for the Integration of Honduras in the Regional Electricity Market", approved by the Board of Executive Directors by Resolutions DE-177/13 and DE-178/13, and taking into account that said resources will be administered by the Inter-American Development Bank (the "Bank"), as implementing entity of the SCX, through an investment grant, it is necessary to modify Resolutions DE-177/13 and DE-178/13.

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank: (i) to take the necessary actions as may be necessary for the Bank to administer, as implementing entity of the SCX, an investment grant for up to the amount of US$7,000,000 (the "Contribution") in accordance with the provisions contained in Document PR-____; (ii) to enter into such agreements as may be necessary with the Republic of Honduras, as Beneficiary, to grant it a complementary financing to that approved by Resolutions DE-177/13 and DE-178/13, to cooperate in the execution of the project "Support for the Integration of Honduras in the Regional Electricity Market and for Grid Access for Renewable Energy" (the "Project"). Such financing shall be nonreimbursable for up to the amount of US$7,000,000 chargeable to the resources of the Contribution, and shall be granted in accordance with the terms described in Document PR-____; and (iii) to take such additional measures as may be pertinent for the execution of the Project.

(Adopted on ___ _____ 2018)