DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

GUATEMALA

MULTIPHASE RURAL ELECTRIFICATION PROGRAM – PHASE I

(GU-L1018)

LOAN PROPOSAL

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REQUIRED

1. Annual work plan (AWP)
   http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1520054
2. Monitoring and evaluation arrangements
   http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1504094
3. Program environmental analysis report (PEAR)
   http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1504102
4. Procurement plan
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1. Risk analysis
   http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1504096
2. PER economic technical analysis
   http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1504101
3. Power for poverty reduction in rural areas of Guatemala (project GU-T1038-ATN/KE-9514-GU) – Final report – June 2008
   http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1509991
4. Seminar on lessons learned from isolated rural electrification systems – June 2008
   http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1520012
5. Case study – CHEL micro hydro plant – August 2007
   http://idbdocs.iadb.org/WSDocs/getDocument.aspx?DOCNUM=1520028

Other documents in the technical files

- Rural Electrification Project (PER) dated December 1998.
- Rural Electrification Plan – DEOCSA Update -DEORSA Planning, February 2001.
- DEORSA and DEOCSA Share Purchase Agreement.
- Trust Agreement entered into by and between INDE, DEORSA, DEOCSA, Banco Agrícola Mercantil de Guatemala S.A. and The Bank of New York on May 4, 1999; and Agreement for Construction of Electric Power Transmission Facilities, dated May 4, 1999; including subsequent amendments to the aforementioned documents.
- Audit of PER Trust Fund financial statements, 2007.

ABBREVIATIONS

BCS	Bank Country Strategy
AWP	Annual work plan
CABEI	Central American Bank for Economic Integration
CNEE	Comisión Nacional de Energía Eléctrica [National Electric Power Commission]
DEOCSA	Distribuidora de Electricidad de Occidente [Western Power Distribution Company]
DEORSA	Distribuidora de Electricidad de Oriente [Eastern Power Distribution Company]
ECOE	Empresa de Comercialización de Energía [Power Commercialization Company]
EEGSA	Empresa Eléctrica de Guatemala [Electric Power Company of Guatemala]
EGEE	Empresa de Generación de Energía Eléctrica [Electric Power Generation Company]
ESMO	Environmental and Social Management Plan
ESMR	Environmental and Social Management Report
ETCEE	Empresa de Transporte y Control de Energía Eléctrica [Electric Power Transportation and Control Company]
EU	Executing Unit
GERO	INDE's Rural Electrification Department
GGU	Government of Guatemala
GPOBA	Global Partnership on Output-Based Aid
INDE	Instituto Nacional de Electrificación [National Electrification Institute]
LGE	Ley General de Electricidad [General Electricity Law]
MEM	Ministry of Energy and Mines
PER	Rural Electrification Program
PMER	Rural Electrification Master Plan
PPMR	Project Performance Monitoring Report
SECCI	Sustainable Energy and Climate Change Initiative

PROJECT SUMMARY

MULTIPHASE RURAL ELECTRIFICATION PROGRAM (PHASE I)
(GU-L1018)

<table>
<tr><th colspan="6">Financial Terms and Conditions</th></tr>
<tr><td colspan="4">Borrower: Republic of Guatemala</td><td>Amortization period:</td><td>25 years</td></tr>
<tr><td colspan="4">Executing agency: Instituto Nacional de Electrificación [National Electrification Institute] (INDE)</td><td>Grace period:</td><td>5 years</td></tr>
<tr><td rowspan="2">Source of financing</td><td colspan="3">Amount (US$ million)</td><td>Disbursement period:</td><td>5 years</td></tr>
<tr><td>Phase I</td><td>Phase II</td><td>Total</td><td>Interest rate:</td><td>Variable</td></tr>
<tr><td>IDB (Ordinary Capital)</td><td>55.00</td><td>45.00</td><td>100.00</td><td>Inspection and supervision fee:</td><td>*</td></tr>
<tr><td>Cofinancing</td><td>-</td><td>-</td><td>-</td><td>Credit fee:</td><td>*</td></tr>
<tr><td>Local contribution</td><td>0.15</td><td>0.14</td><td>0.29</td><td rowspan="2">Currency:</td><td rowspan="2">U.S. dollar from the Single Currency Facility</td></tr>
<tr><td>Total</td><td>55.15</td><td>45.14</td><td>100.29</td></tr>
</table>

Project at a glance

Project objective/description:
The objective of the program is to improve the living conditions of the low-income population and boost productivity in rural communities by enhancing and expanding electricity service coverage, thereby contributing to poverty reduction. The specific objective of this operation is to finance government incentives or contributions to promote rural electrification through: (i) power grid connection projects, including distribution infrastructure and associated transmission works; and (ii) the promotion and development of electrification projects in isolated systems.

Special conditions precedent to the first disbursement:

- Integration of the program Executing Unit into the INDE General Manager's Office, with at least the Program Coordinator and liaisons with GERO and ETCEE (paragraph 3.2);
- Creation of a Unit at the GERO to develop the off-grid component and designation of those in charge of the unit (paragraph 1.15);
- Execution of a subsidiary agreement between INDE and the Ministry of Finance, as indicated in paragraph 3.1.

Special conditions precedent to the disbursement of funds under Component 2:

- Approval of a legal instrument establishing an incentive-based mechanism for developing off-grid systems as indicated in paragraph 1.15.

Other special contractual clauses:

- Activities included in the program must be performed in accordance with the provisions of the ESMR (paragraph 2.7);
- To be eligible for financing under the program, each on-grid or off-grid rural electrification project or associated transmission facility for which the government grants a program-funded subsidy must be listed in a plan of operations that has previously received the Bank's no objection (paragraph 3.8).

Exceptions to Bank policies:
None.

Project qualifies as: SEQ [ ] PTI [ ] Sector [ ] Geographic [ ] Headcount [ ]

Procurement: See procurement plan

ESR verification date: July 3, 2008

* The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with the applicable provisions of the Bank's policy on lending rate methodology for Ordinary Capital loans. In no case will the credit fee exceed 0.75% or the inspection and supervision fee exceed, in a given six-month period, the amount that would result from applying 1% to the loan amount divided by the number of six-month periods included in the original disbursement period.

I. DESCRIPTION AND RESULTS MONITORING

A. Background and results

1.1 One of the greatest challenges facing Guatemala as it seeks to reduce the poverty that afflicts broad segments of the population depriving them of the benefits of development is the effective delivery of public services. It is estimated that 51% of Guatemalans live in poverty and most are concentrated in rural areas, home to 52% of the country's population. The incidence of rural poverty is as high as 72% and affects primarily indigenous communities, where poverty runs at 75%. Rural households with unmet basic needs constitute 85% of the total, a proportion two to three times greater than in the case of urban households.

1.2 In the 1990's, Guatemala began modernizing the electricity sector, primarily on the basis of the 1996 National Electricity Act (LGE). This modernization drive included a new legal and regulatory framework for the electricity industry, as well as a restructuring of the two government-owned power companies: Empresa Eléctrica de Guatemala (EEGSA) and the Instituto Nacional de Electrificación (INDE). INDE's distribution area was divided up between two companies: Distribuidora de Electricidad de Oriente, S.A. (DEORSA) and Distribuidora de Electricidad de Occidente, S.A. (DEOCSA), predominantly serving rural customers with low individual usage. The power generation and distribution functions of EEGSA and INDE were privatized through the sale of 80% of the capital stock.

1.3 The LGE acknowledged the difficulty in expanding electricity coverage once the distribution companies had been transferred to the private sector. This is reflected in article 47: *The State may provide financial resources to partially or fully fund investments in rural electrification projects that are socially beneficial or in the public interest and are carried out beyond the demarcated territorial area. Funding provided by the State shall be considered a subsidy and may not be transferred to the user as a cost. Any construction work performed with such funding shall be managed and operated by the successful bidder*.

1.4 Against this backdrop, Guatemala adopted the Rural Electrification Plan (PER) as an integral part of the electricity sector modernization strategy. The PER is an integrated plan for investment in distribution and associated transmission works that are required to extend coverage to 280,629 new consumers and improve service, particularly in low-income rural communities. To execute the PER, a Trust

Fund[1] was created in the amount of US$333.6 million, of which US$182.7 million was allocated for rural distribution and US$150.9 million for transmission to support the growth of the distribution networks. As of December 31, 2007, INDE has contributed US$209.4 million to the Trust Fund, has received US$40.1 million through a Central American Bank for Economic Integration (CABEI) loan, and is in the process of obtaining a US$6.7 million donation from the Global Partnership on Output-Based Aid (GPOBA), which means that US$77.4 million would be needed to complete the contributions to the Trust fund. The proposed Inter-American Development Bank (IDB) loan of US$55.0 million will be considered a contribution to the Trust. In addition, INDE will contribute US$22.4 million.

1.5 The new Guatemalan government authorities have affirmed the importance of rural electrification as part of an integrated focus on efforts to combat poverty. Accordingly, they have requested this program, which places a priority on providing electric power to communities that lack this service in the country's poorest municipios. Moreover, the program will be designed to allow the Guatemalan authorities to complete the pending contributions to the Trust Fund created in 1999 to implement the PER. As a result of efforts in connection with the PER, the country's rural electrification rate has increased from 63% in 1999 to the current 83%. Nonetheless, in the 45 poorest municipios where the proportion of the rural population is highest, the electrification rate is now just 63%.

1.6 Electrification efforts have so far concentrated on connecting users to the existing power grid through the PER. However, it is estimated that a high proportion of the nearly 300,000 families still without electricity in Guatemala lives in isolated areas where grid access is not considered possible in the medium term. For this reason, based on the work performed in operation ATN/KE-9514-GU Energy for Poverty Reduction in Rural Areas, efforts are under way to identify alternatives for servicing these areas. A seminar on lessons learned from isolated rural electrification systems was held in June 2008, essentially to discuss the experience and advances in implementing rural electrification in Guatemala and other countries. Amongst other topics, discussion touched on whether rural electrification should be implemented through the expansion of existing networks or the construction of isolated (off-grid) systems. Presentations by representatives of INDE, Comisión Nacional de Energía Eléctrica (CNEE), and DEOCSA/DEORSA looked at the progress achieved in executing the PER-Guatemala through network

[1] As part of the privatization process, the responsibility for executing projects financed through the Trust was left to DEORSA and DEOCSA (Distributors), both of which were acquired by Union Fenosa (UF). Three agreements were executed: (i) a Share Purchase Agreement for 80% of the DEORSA and DEOCSA capital stock, by the Purchaser, the Distributors, UF and INDE; (ii) a Trust Agreement, by INDE, the Distributors and Banco Agromercantil de Guatemala S.A. (as Trustee), and (iii) an Agreement for Construction of Electric Power Transmission Facilities, by INDE, the Distributors, and the Purchaser. These agreements set forth how the construction works are being managed, as well as the obligations and responsibilities of participants in the contracting and construction of the works. The Technical Committee of the Trust (TCT – composed of one representative for each of MEM, INDE and the Distributors) and the Supervisor (an individual or legal entity appointed by the TCT) are in charge of supervising proper execution of the PER .

expansion, while presentations by Fundación Solar, AGER, NRECA Internacional, ATDER-BL of Nicaragua, and the IDB highlighted the experience with off-grid rural electrification in Guatemala and other countries. Seminar discussions underscored the benefits of isolated systems, their main features, and the prerequisites for success, as well as the difficulties encountered in formulating and implementing such systems and making them operationally sustainable.

1.7 **IDB country strategy.** The operation is consistent with the IDB Country Strategy with Guatemala (GN-2355-1), which seeks to improve utility access for people in rural areas, including increased rural electricity coverage. Furthermore, the operation was deemed a priority by the country's new authorities during the Programming Mission in early 2008.

1.8 The program will make it possible to reach the objectives of the Bank's Sustainable Energy and Climate Change Initiative (SECCI) through its contribution to energy sustainability and the reduction of the greenhouse gas effect because new users in rural areas connected to the network will be supplied with energy from mainly renewable sources (hydroelectricity). This will have the effect of minimizing the use of wood (reducing deforestation), diesel, kerosene, and other hydrocarbons that currently serve as sources of lighting and electric power generation. For isolated systems, the objective is to promote the use of renewable energy sources such as sun and wind. In each case, efforts will promote renewable energy and less reliance on fossil fuels. The Bank's strategy for the Guatemalan energy sector also brings into the present program a number of technical-cooperation projects with resources from the SECCI and the InfraFund. These projects are supporting the development of renewable energy sources, the establishment of small and medium-sized power plants, the design and implementation of a comprehensive energy efficiency plan and a biofuel action plan, and environmental and social management to encourage private-sector participation in developing renewable energy sources.

B. Objective, components, and cost

1.9 The aims of the proposed program is to improve the living conditions of the low-income population and boost productivity in rural communities by enhancing and expanding electricity service coverage, thereby contributing to poverty reduction. The specific objective of this operation is to finance State incentives or contributions to promote rural electrification through: (i) power grid interconnection projects, including distribution infrastructure and associated transmission works; and (ii) the promotion and development of isolated electrification systems. To achieve these objectives, the program will include the following components:

1.10 **Component 1 – On-grid rural electrification projects.** This component will finance government incentives to support rural electrification projects involving connection to the power grid, including associated investments in transmission reinforcement. The IDB will finance a government subsidy of US$47 million in the initial phase and US$8 million in the second phase for construction of the

distribution and associated transmission works and user connections under the PER administered by the Trust. The costs per connected user and the unit prices for construction of transmission works were arrived at as a result of the bidding process for the privatization of DEORSA and DEOCSA, the companies that acquired the right and obligation to undertake such construction. The agreed prices are reasonable compared with those of other similar programs in the region, considering the difficulties posed by the topographical conditions and distances to be covered in the case of Guatemala. The specific works to be financed will be determined on the basis of an annual schedule to be agreed upon with the IDB. This component will have two subcomponents:

1.11 ***Associated transmission projects:*** The sum of US$23.6 million from the financing for phase one will be allocated to associated transmission projects for expansion of rural electrification. The associated transmission program was part of the original PER proposal, and in 2000 it was reviewed in detail and updated. The projects listed below have been selected tentatively from among construction projects pending and will be part of the 2009-2010 Annual Construction Program. This list may be adjusted with projects being added or removed depending on expansion requirements and the priorities of the national electric power system. The costs of building associated transmission works include studies and designs, rights of way, land, and all equipment and supplies, to the specifications in the PER pursuant to INDE and CNEE standards. The bidding process for privatizing DEOCSA and DEORSA set fixed unit prices for the construction of these works, with annual inflation adjustments.

ASSOCIATED TRANSMISSION FACILITIES		Cost
69-kV Lines	Km.	Updated
Fray Bartolomé-Chisec	49	3.71
Chajul – Sacapulas	30	2.27
Chicaman – Sacapulas	35	2.65
Chicaman-Tactic	65	4.92
Quiche-Sacapulas	40	3.03
Subtotal lines	**219**	**16.57**
69/13.8- and 69/34.5-kV Substations	MVA	
San Fray Bartolomé 69/13.8 kV	14	1.52
Sacapulas 69/13.8 kV	14	1.74
Chicaman 69/13.8 kV	14	1.74
Chajul 69/13.8 kV	14	1.74
Quiche Expansion		0.24
Subtotal substations		**7.00**
TOTAL		**23.57**

User connections to the grid: The rest of the funds for the initial phase of this component (US$23.4 million), as well as the US$8 million for the second phase, will be used to finance grid connection costs per user in communities to be electrified. Communities are selected from the original list of communities, which was drawn up prior to the privatization process on the basis of electrification projects prepared by INDE and is updated with any additional requests received by INDE. Each year, the Trust Fund Technical Committee approves an annual plan, including communities selected essentially on the basis of proximity to existing networks and geographical coverage. The procedures being used are outlined in the Trust Agreement, and the Ministry of Energy and Mines (MEM) must either grant or deny approval, based on the relevant socioeconomic study required under the LGE (Art. 47) for the government to subsidize rural electrification projects. It is estimated that this component will connect approximately 39,105 users to the grid, as shown in the table below:

ELECTRIFIED USERS	PHASE I	PHASE II	Total
On-grid	29,151	9,954	39,105
Electrification priority municipios	22,271	4,977	27,248
Rural Electrification other areas	6,880	4,977	11,857

1.12 **Component 2 – Isolated rural electrification systems.** This component will support the development of off-grid rural electrification projects through renewable energy sources under the Bank's SECCI initiative (micro and/or small hydro plants, wind plants, photovoltaic solar energy, amongst other sources) that are environmentally sound, thus improving both the environmental quality of the energy supply and the sustainability of these solutions. Such support includes the studies, workshops, training, internships, and technical assistance to help civil society program participants implement sustainable management models required for the solution used to provide the service. This component will have two subcomponents:

1.13 ***Incentives for development of off-grid systems:*** The first subcomponent will finance incentives to invest in isolated systems. It will include IDB funding in the amount of US$5 million for phase one and US$35 million for phase two, making it possible to create an incentive-based mechanism for the development of sustainable isolated systems under the SECCI initiative. This component is intended to provide nonreimbursable monetary incentives for initial investment in the design, construction, and commissioning of projects using local energy sources providing a sustainable energy supply, such as micro and small hydropower plants, wind power plants, and other renewable energy sources (e.g., photovoltaic solar energy and biomass).

1.14 ***Technical support for development and implementation of isolated systems***: The second subcomponent (US$2.4 million for phase one and US$1.4 million for phase two) will finance the technical assistance studies and activities required for the development of sustainable isolated rural electrification systems. Detailed preparation of this subcomponent, including the design of the incentive-based mechanism, the methodologies to be used, and the necessary technical reinforcements, will be supported through the rural electrification technical-cooperation program (GU-T1120). Creating a specialized unit within INDE's Rural Electrification Department (GERO) to develop the off-grid system component and appointing personnel to head the unit will be a condition precedent to the first disbursement. In addition, developing an incentive-based mechanism by means of a legal instrument to be part of the technical-cooperation program, including the creation of an executive committee authorized to approve the contribution of nonreimbursable monetary incentives, will be a condition precedent to disbursement of financing for this component.

1.15 Activities to be financed under this component are grouped into 3 categories: (i) direct support to communities applying for incentives for the development of off-grid systems, in order to complete the studies, business plans, institutional execution structure, and other requirements to ensure system sustainability; (ii) executive committee support in the form of specialized consulting firms or individual consultants to evaluate, prioritize, and approve applications for incentives; and (iii) institutional strengthening and training for all stakeholders involved in the development, evaluation, and operation of the systems.

1.16 **Component 3 – Support for program management and supervision.** This component will provide US$600,000 in funding for each phase to ensure proper program execution through the institutional strengthening of INDE to address the off-grid system component, program supervision, including socioenvironmental supervision, and evaluation of Phase I by a consultant. The following table shows the projected budget of investment and financing, including the local contribution to be furnished by the loan committee.

MULTIPHASE RURAL ELECTRIFICATION PROGRAM			
Investment and financing program (US$ millions)			
CATEGORY	**PHASE I**	**PHASE II**	**Total**
1. Grid connection projects (PER)	47.00	8.00	55.00
1.1 Associated transmission projects	23.60	0.00	23.60
1.2 Electrification of rural users	23.40	8.00	31.40
2. Off-grid projects	7.40	36.40	43.80
2.1 Electrification of rural users	5.00	35.00	40.00
2.2 Off-grid technical support	2.40	1.40	3.80
3. Supervision, audit and administration	0.60	0.60	1.20
TOTAL IDB FINANCING	**55.00**	**45.00**	**100.00**
4. Local contribution – credit fee	**0.15**	**0.14**	**0.29**
TOTAL WITH LOCAL CONTRIBUTION	**55.15**	**45.14**	**100.29**

C. Results matrix and key results indicators

1.17 **Expected outcomes.** The most significant project outcomes will be expanded electricity coverage, particularly in communities without service in the country's 45 poorest municipios selected, and increased electric power consumption as a result of the associated transmission works. Thus, nationwide electricity coverage is expected to rise from 83% in 2007 to 86% by the end of Phase I in 2011, and 89% by the end of Phase II. Also, at least 209 km of associated transmission lines are expected to be in place, and 5 substations to be completed, by the end of Phase I. Lastly, the incentive-based mechanism for developing sustainable isolated systems, linked to the Bank's SECCI pillar, is expected to be established. A description of the indicators and their projected values is presented in the attached results matrix.

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing instruments

2.1 The proposed program calls for a multiphase initiative, which is considered appropriate since it permits systematic and sustained long-term IDB support through interrelated phases to reach investment and rural coverage growth targets. Phase I provides for a US$55 million loan to be approved in 2008, and Phase II

provides for a US$45 million loan to be approved, tentatively, in 2010, once substantial progress has been made on Phase I.

B. Environmental and social risks and mitigating measures

2.2 The proposed program will have significant positive environmental and social impacts since it will raise the living conditions of the low-income population and boost productivity in rural communities, providing reliable lighting to facilitate education and make health and educational services more readily available. As part of the SECCI initiative, the program will enable the beneficiaries to make better use of energy sources, promote renewable energy sources, and relieve the pressure of human activity on forested areas. The project works proposed will be distribution network extensions and electrification in noninterconnected areas powered by renewable energy sources.

2.3 During program preparation, the environmental and social management framework prepared earlier for this operation was updated. It also included a review of the environmental and social baseline and the description of the projects to be financed under the program was analyzed. The environmental and social impacts of the transmission programs, which include short and medium-voltage lines, will be localized and minor in nature. The distribution segment will not generate any significant environmental or social impacts since the projects will be in small rural communities and not require environmental and social impact studies. There will be environmental and social management plans (ESMP) for this segment. In the distribution segment, the most important factors relate to social management, in terms of project selection and public hearings. These issues are being duly handled by INDE, DEOCSA, and DEORSA. Environmental and social impact studies and environmental and social management plans will be implemented in accordance with Guatemalan regulations and IDB policies. The Environmental and Social Management Report (ESMR) includes model Terms of Reference that were designed during program preparation, which will be monitored during the environmental evaluation of the projects.

2.4 Since it was approved, the environmental and social management of the PER has been evolving satisfactorily. Pursuant to Guatemalan legislation and IDB policies, program-financed power transmission projects require environmental and social studies, but distribution programs do not. What the latter programs need is project social management that focuses primarily on the most vulnerable groups within the PER, such as indigenous communities, in an appropriate sociocultural context.

2.5 Rural electrification programs in isolated areas must have ESMPs in the design, construction, operation, and maintenance stages. These programs seek to foster the use of renewable energy sources. Development of this component will be supported by a rural electrification technical-cooperation project (GU-T1120), to assist with the implementation of the present program. This technical- cooperation project will support the design of projects presented to the program for financing by the Bank,

including environmental and social management activities, based on national requirements and IDB policies.

2.6 Institutionally, the PER's environmental and social management centers on INDE's Rural Electrification Department but also includes the socioeconomic concept of the MEM. Transmission projects are designed by DEOCSA and DEORSA, subject to approval by ETCEE, INDE's distribution company. Environmental and social impact studies for transmission projects are performed by independent environmental and social consulting firms hired by INDE. INDE's Rural Electrification Department, which identifies the beneficiaries of distribution programs, includes a project social management unit that deals mainly with customer data collection and surveys and issues relating to productive uses. ETCEE, as well as DEOCSA and DEORSA, have properly equipped and operating environmental and social management units.

2.7 A project executing unit has been designed as part of this program. This unit has an environmental and social specialist who, jointly with INDE, will be responsible for ensuring the program's three components comply with Guatemalan environmental and social legislation and IDB environmental and social policies. A review and update of the environmental and social framework resulted in an ESMR incorporating these adjustments. As a special execution condition, the executing agency would ensure that program activities are carried out in accordance with the ESMR. In particular, it would verify that the distributors/operators performing the rural electrification and associated transmission projects have complied with the environmental protection measures provided in the program. Based on IDB environmental policies and safeguards, and the filter results shown in Annex III, this program has been accorded a category "B" classification.

C. Fiduciary and execution risks

2.8 **Fiduciary risks.** The Trust procedures for administration of the PER will guide all investment in the on-grid rural electrification component. The Trust Fund is now functioning and has demonstrated institutional operating capacity. For purposes of program implementation, an executing unit will be created within INDE (paragraph 3.2), and the disbursement procedures will be similar to those agreed by INDE and CABEI. The executing unit will concentrate on and reinforce INDE's supervisory role, prior to executive committee certification, to enable the Trustee to pay the agreed user fees or the advance on associated transmission projects in accordance with existing procedures. The financing will be used to reimburse the Trustee as described in paragraph 3.4. The executing unit will benefit from the addition of a socioenvironmental specialist to verify compliance with the agreed program environmental and social management plan, and a financial specialist to ensure compliance with IDB requirements.

2.9 The technical-cooperation project will help develop a detailed execution mechanism, using time-tested institutional arrangements, for the isolated systems (paragraph 1.15).

D. Other key issues and risks

2.10 **Technical and economic feasibility.** Technical and economic evaluation of the PER rural electrification and associated transmission projects was performed for the IDB by a specialized consulting firm (see program annexes). All works are being executed according to technical standards and specifications determined by INDE and CNEE. The program economic evaluation was carried out not just for program projects but for the entire PER, which has been under way since 1999 and the benefits extend to all customers in the project area. The evaluation quantified the benefits arising from: (i) incremental power for various types of customer (residential, commercial, industrial, etc.); (ii) energy efficiency; (iii) residential lighting resources freed up (replacement of candles and batteries); and (iv) savings due to shift from expensive and inefficient power generation (the PER will result in the interconnection of isolated systems currently powered by low-quality diesel motors). Sensitivity studies were performed for significant increases in costs or reductions in variable benefits. The base case scenario yields a 14.74% internal rate of return, and sensitivities show that the program is insensitive to the significant changes assumed in the analysis. For off-grid systems, evaluation methodologies will be developed as part of the technical-cooperation component to ensure that program incentives support technically and economically justifiable and sustainable investments.

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Summary of implementation measures

3.1 **Borrower and executing agency.** The borrower will be the Republic of Guatemala and INDE[2] will be the executing agency. As a condition precedent to the first disbursement, the Ministry of Finance and INDE must enter into an agreement specifying, among other things, that: (i) the funds will be transferred to INDE so that program activities can be implemented; (ii) that INDE will carry out program activities in accordance with the terms and conditions of the loan; and (iii) the proceeds of the loan must be used solely for the purposes of the program.

3.2 INDE will create an Executing Unit within the General Manager's Office. The unit will have a Program Coordinator and such technical support as is required for program execution. Such support may be drawn from within INDE or contracted

[2] INDE was created on May 27, 1959 by Executive Decree 1959. It is currently an autonomous, self-financing government agency, with its own capital and independent legal status, and it has the capacity to acquire rights and assume obligations within its sphere of competency. Upon enactment of the LGE, the INDE was reorganized as a holding company or corporation for three companies: Empresa de Generación de Energía Eléctrica (EGEE), ETCEE, and Empresa de Comercialización de Energía (ECOE), each of which is in charge of electric power generation, transportation, and marketing. All other business areas, including finance, human resources, corporate services, rural electrification, legal and technical advisory services, and internal audit, operate under the holding company and its services are shared by the aforementioned business units.

externally out of the proceeds of the loan. It is estimated that the Executing Unit will need to have at a minimum technical experts in power distribution and transmission, a financial systems expert with knowledge of Bank procedures, and an expert in environmental and social issues, and the technical strength to develop the isolated systems component. As a condition precedent to the first disbursement, the Executing Unit must be integrated into the INDE General Manager's Office and a program coordinator and the liaisons with GERO and ETCEE must have been designated.

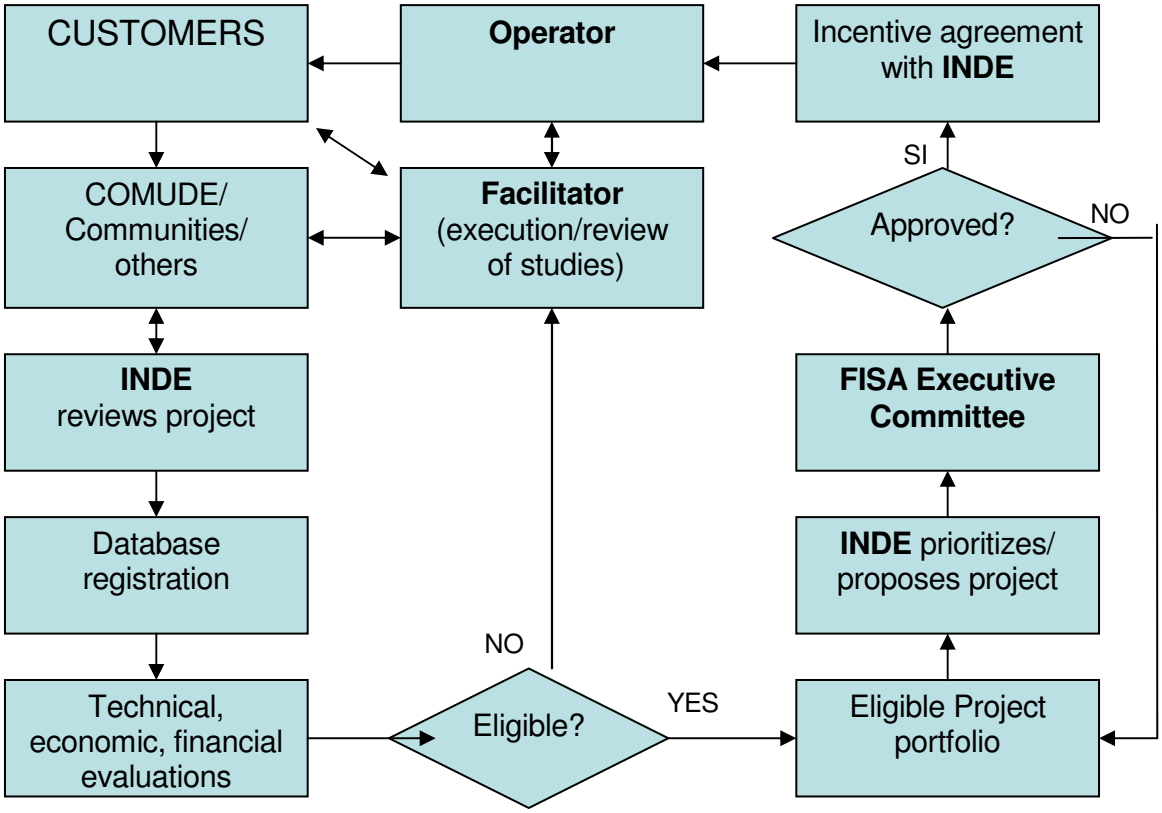
3.3 The duties of the Executive Unit will include: (i) performing internal procedures and, together with the Bank, conducting negotiations on the program, coordinating the activities of INDE's participating offices, handling relations with the PER Trust Fund and the mechanism set up to carrying out isolated systems component; (ii) conducting the process of selecting and hiring consulting firms, auditors, and other technical assistance providers in accordance with IDB procedures; (iii) keeping program financial records; (iv) preparing and submitting semiannual reports requested by the Bank; and (v) compiling, storing, and keeping all information, indicators, and parameters needed to help the Bank prepare the Program Completion Report or any other program evaluation that may be required.

3.4 **Execution cycle of grid connection (PER) investments.** Investments to connect users to the grid and associated retransmission works will be carried out in accordance with the PER procedures in the Trust Agreement. Each year, the distributors and INDE will agree upon an annual work plan. The plan must have all supporting documentation and be approved by the Trust Fund Technical Committee. It must be submitted to the Bank for the latter's no objection before being presented to the Trust Fund Technical Committee. Once the Plan is approved by the Committee, the Trustee will make a payment equivalent to 20% of the total program amount. Payment of the remaining 80% will not be authorized until delivery of the distribution projects and progress on the associated transmission works have been verified and certified. For purposes of Bank financing, it has been determined that the Bank will, at INDE's request, fully reimburse all payments made by the Trustee for user connections and for progress on transmission works, against verification and certification of delivery of distribution works or of progress on associated transmission works, in a manner consistent with the Bank's disbursement procedures. Approval and certification by the Trust Fund Technical Committee will need to include, for each disbursement request, certification by the independent supervisor, with the Committee's aval and verified by GERO in the case of distribution works or by ETCEE in the case of transmission works. IDB reimbursements to the Trust Fund will be recorded by the Trust Fund as government contributions for purposes of paragraph 1.4.

3.5 **Execution cycle of off-grid projects.** A preliminary flow-chart has been prepared to illustrate the process for selection and approval of incentives for developing sustainable isolated systems. The technical-cooperation funding for this component will be used to cover the cost of an evaluation of the flow-chart, which is available

in the program technical annexes and the project cycle shown in summarized form in Figure 1 (Isolated systems project cycle). Eligibility will be restricted to selected off-grid projects accorded priority: (i) that originate in a request from the community interested in receiving the service; (ii) that have received a technical, economic, and financial evaluation supervised by INDE; (iii) where the amount of the incentive for the initial investment is determined through a competitive process among the candidates to operate the systems, or otherwise, at INDE's discretion, through negotiations with organized groups in the community that requests the service; (iv) that include mechanisms to ensure that service delivery is sustainable throughout their useful life provided, however, that operation and maintenance agreements are entered into for a minimum of ten years, and may be extended; and (v) that comply with program environmental and social requirements.

Figure 1. Isolated Systems Project Cycle



3.6 **Eligibility for phase II of the program.** Phase II of the program will be submitted to the IDB Board of Directors for consideration, provided that an independent consultant has performed an evaluation based on the terms of reference agreed with the Bank and the executing agency, verifying compliance with the following targets and indicators: (i) at least 75% of the financing for phase I must have been committed, and 50% of the financing disbursed; (ii) a mechanism to provide

incentives for the development of sustainable isolated systems must have been established and be in effect and functioning; (iii) 50% of the grid and off-grid connections planned for phase I must have been completed; and (iv) the rate of advance of the associated transmission works must be 50%.

3.7 **Procurement of goods and services**. The lion's share of the financing for the operation will be used to cover nonreimbursable government incentives or contributions for development of rural electrification and associated transmission works in the PER and isolated systems. Such incentives will be set in advance and paid once user connections or progress on associated transmission works have been certified. For these components, program execution and administration will not include provisions regarding calls for proposals.[3] The remainder of the financing will be used to engage consulting and nonconsulting services, in accordance with IDB policies (document GN-2350-7). The attached procurement plan gives a breakdown of the contracting and review process that will be used.

3.8 **Disbursements**. The Bank will review disbursement requests ex post. The executing agency will be required, however, to keep all supporting documentation justifying expenses incurred for subsequent review by the Bank. Each on-grid or off-grid rural electrification project or associated transmission work for which the government pays a program-financed subsidy will be listed in a plan of operations that has previously received the Bank's no objection to eligibility for financing.

B. Summary of steps to monitor outcomes

3.9 Management missions will be conducted on an annual basis to ensure proper technical, environmental, social, financial, and operational monitoring. INDE will submit semiannual progress reports to the Bank, describing the progress of each component and overall program performance, based on the indicators agreed in the Results Matrix. In addition, such reports must include: (i) a description of activities completed; (ii) updated physical execution and disbursement schedules; (iii) the degree to which the agreed indicators have been reached; (iv) a schedule of activities for the following six-month period; (v) a summary of the status of program financial execution and the expected flow of funds for the following six-month period; (vi) a section identifying potential developments or events that might jeopardize program execution; (vii) a section on program socioenvironmental management; and (viii) in the year-end report, the AWP, including the updated procurement plan. These outcomes will be evaluated by a series of objective technical indicators specified in the Results Framework, to be determined before,

[3] It will however, be required that agreements with distributors/operators include certain terms and conditions, such as: (i) the obligation to comply with program environmental protection measures; (ii) the right of INDE and the Bank, as well as of the independent auditing firm, to examine the goods, sites, works, and structures of the relevant projects; (iii) in the case of advance payments, submitting bank guarantees acceptable to the borrower and the Bank for the advance on subsidies; and (iv) a mechanism enabling INDE to take possession of the equipment and systems in the event that the operator permanently suspends the contracted service or fails to satisfy the minimum quality standards specified in the agreement.

during, and after the program and to permit updates of the Project Performance Tracking Report (PPTR).

3.10 The executing agency will compile, store, and keep all information, indicators, and parameters, including annual work plans, to assist the Bank with the Loan Performance Report and the Program Completion Report. The program provides for monitoring of the physical and financial targets and evaluation of impacts through the program administration subcomponent. These reports will include semiannual updates of program results indicators.

3.11 **External audits**. For the duration of the program, the borrower will submit to the Bank the program's annual consolidated financial statements within 120 days after the end of the fiscal year, commencing in the year in which the first disbursement is made. Audits will be performed by an independent auditing firm acceptable to the IDB, in accordance with the terms of reference previously approved by the IDB (document AF-400). The auditing firm will be selected and contracted according to the procedures in the call for proposals for external audits (document AF-200). The financing will defray the cost of audits.

C. Significant events alter approval

3.12 In order to expedite commencement of the program, preliminary activities will receive technical-cooperation funding support from the Bank (operation GU-T1120) during the period in which the loan is being ratified by the legislature. Such support will focus on activities to fulfill the conditions precedent to the first disbursement, such as integration of the Executing Unit, other activities, and the creation of a unit for the isolated systems component. The Bank will also help set up the executive committee, which will be in charge of evaluating, prioritizing, and approving requests for incentives; designing a mechanism to provide incentives and the evaluation methodologies; providing technical reinforcement as needed by the INDE team; and structuring all other off-grid component activities. Furthermore, in preparing the Rural Electrification Master Plan (PMER), technical-cooperation funding will be used to cover a diagnostic assessment of the status of rural electrification in Guatemala, to generate baseline information for the PMER, and to review and update the baseline results indicators for this program.

GUATEMALA
MULTIPHASE RURAL ELECTRIFICATION PROGRAM – PHASE I
(GU-L1018)

RESULTS MATRIX / INDICATOR MATRIX

Project objective	The proposed Program is aimed at improving living conditions for the low-income population and boosting productivity in rural communities by enhancing and expanding electricity service coverage, thereby contributing to poverty reduction. The specific objective of this operation is to finance government incentives or contributions to promote rural electrification through: (i) power grid connection projects, including distribution infrastructure and associated transmission works; and (ii) the promotion and development of off-grid electrification projects.			
Results matrix	**Baseline**	**Target**		
Increase in electrification coverage		**PHASE I**	**PHASE II**	
Rural electrification coverage will have increased nationwide.	**82.6**	**85.9%**	**88.6%**	At the end of each Phase of the Program.
Electrification coverage will have increased in the poorest prioritized municipios.	**66.1**	**73.9%**	**75.6%**	At the end of each Phase of the Program.
Outcomes				
Implementation of an incentive-based mechanism to encourage the development of off-grid systems	n/a	System designed and implemented	System operating	At the end of each Phase of the Program.
New 69-kV transmission lines and associated substations will have been built and commissioned to facilitate rural electrification	n/a	• 5 new 69kV lines spanning 219 km • 4 new 69/13.8 kV substations		At the end of Phase I of the Program.
Power grid connections (PER)		29151	9954	At the end of each Phase of the Program.
Off-grid connections		5000	35000	

Results Indicator	Baseline 2007	2008	2009	2010	2011	2012	2013
Electrified users							
On-grid	2,005,679	2,067,160	2,140,406	2,215,551	2,289,833	2,356,301	2,424,718
Prioritized municipios	179,873	186,580	200,262	213,471	222,716	227,170	231,713
Other areas	1,825,806	1,880,580	1,940,144	2,002,080	2,067,118	2,129,131	2,193,005
Off-grid	20,175	20,579	21,990	24,130	35,912	49,631	63,623
Prioritized municipios	4,881	4,979	5,578	6,690	13,324	20,590	28,002
Other areas	15,294	15,600	16,412	17,440	22,589	29,041	35,622
Total nationwide users	2,005,679	2,067,160	2,140,406	2,215,551	2,289,833	2,356,301	2,424,718
Prioritized municipios	179,873	186,580	200,262	213,471	222,716	227,170	231,713
Other areas	1,825,806	1,880,580	1,940,144	2,002,080	2,067,118	2,129,131	2,193,005
Total households	2,429,649	2,478,242	2,527,807	2,578,363	2,629,930	2,682,529	2,736,179
Prioritized municipios	272,189	277,633	283,185	288,849	294,626	300,519	306,529
Other areas	2,157,460	2,200,609	2,244,621	2,289,514	2,335,304	2,382,010	2,429,650
Coverage rate							
Total nationwide	82.6%	83.4%	84.7%	85.9%	87.1%	87.8%	88.6%
Prioritized municipios	66.1%	67.2%	70.7%	73.9%	75.6%	75.6%	75.6%
Other areas	84.6%	85.5%	86.4%	87.4%	88.5%	89.4%	90.3%

Other outputs/outcomes							
Implementation of incentive mechanism for the development of off-grid systems			Implemented system	Implemented system	Implemented system	Implemented system	Implemented system
Km of 69-kV lines (US$ M)			3.31	8.29	4.97		
Substations (US$ M)			1.40	3.50	2.10		
# of grid connections (PER)	Phase I		16,212	12,940	0		
# of connections in isolated systems	Phase I		1,000	1,700	2,300		
# of grid connections (PER)	Phase II				9,954	0	0
# of connections in isolated systems	Phase II				9,000	13,000	13,000

GUATEMALA

MULTIPHASE RURAL ELECTRIFICATION PROGRAM – PHASE I
(GU-L1018)

PROJECT PROCUREMENT PLAN (JUNE 2008 TO DECEMBER 2009)

No.	Description	Cost estimate (US$)	Procurement method	Review	Financing source and percentage		Pre-qualification (Yes/No)	Estimated dates	Status
					IDB %	Local %		Posting of specific bidding notice	
	1. Consulting Services								
1	Environmental and social expert to support the Executing Unit	100.0	CCIN	Ex post	100%		No	4th Quarter 2008	
2	Operating and financial statement audit	150.0	SBMC	Ex ante	100%		No	4th Quarter 2008	
3	Expert in procedures and financial record-keeping to support Program execution	100.0	CCIN	Ex post	100%		No	4th Quarter 2008	

Works and Goods: ICB: International Competitive Bidding; LIB: Limited International Bidding; NCB: National Competitive Bidding; PC: Price Comparison; DC: Direct Contracting; DM: Direct Management; PSA: Procurement through Specialized Agencies; PA: Procurement Agents; IA: Inspection Agents; PLFI: Procurement in Loans to Financial Intermediaries; BOO/BOT/BOOT: Build-Own-Operate/ Build-Operate-Transfer/ Build-Own-Operate-Transfer; PBP: Performance Based Procurement; PLGB: Procurement under Loans Guaranteed by the Bank; CPP: Community Participation Procurement. Consulting Firms: QCBS: Quality and Cost Based Selection; QBS: Quality Based Selection; SFB: Selection under a Fixed Budget; LCS: Least- Cost Selection; CQS: Selection based on Consultants' Qualifications; SSS: Single-Source Selection. Individual consultants: NICQ: National Individual Consultant selection based on Qualifications; IICQ: International Individual Consultant selection based on Qualifications.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-__/08

Guatemala. Loan ____/OC-GU to the Republic of Guatemala
Multiphase Rural Electrification Program--Phase I

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, to enter into such contract or contracts as may be necessary with the Republic of Guatemala, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a multiphase rural electrification program – Phase I. Such financing will be for the amount of up to US$55,000,000, from the resources of the Single Currency Facility of the Bank's Ordinary Capital, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on __ _____ 2008)

LEG/SGO/CID/IDBDOCS#1521369
GU-L1018