REQUEST FOR PROPOSALS

FEASIBILITY STUDY FOR THE

ILOPANGO-AGUACAYO HYDROPOWER PROJECT IN EL SALVADOR

Submission Deadline: **4:00 PM**

LOCAL TIME (SAN SALVADOR, EL SALVADOR**)**

OCTOBER 31, 2012

Submission Place:

José Hermes Landaverde García
Director Presidente
INGENDEHSA, S.A. de C.V.
Av. 1, Pol. E., Casa No. 6
Brisas de San Francisco
Col. Lomas de San Francisco III Etapa
San Salvador
El Salvador
Phone: + (503) 2273-6243

SEALED PROPOSALS SHALL BE CLEARLY MARKED AND RECEIVED PRIOR TO THE TIME AND DATE SPECIFIED ABOVE. PROPOSALS RECEIVED AFTER SAID TIME AND DATE WILL NOT BE ACCEPTED OR CONSIDERED.

REQUEST FOR PROPOSALS

SECTION 1: INTRODUCTION 4
1.1 BACKGROUND SUMMARY 4
1.2 OBJECTIVE 4
1.3 PROPOSALS TO BE SUBMITTED 5
1.4 CONTRACT FUNDED BY USTDA 5
SECTION 2: INSTRUCTIONS TO OFFERORS 6
2.1 PROJECT TITLE 6
2.2 DEFINITIONS 6
2.3 DEFINITIONAL MISSION REPORT 6
2.4 EXAMINATION OF DOCUMENTS 6
2.5 PROJECT FUNDING SOURCE 6
2.6 RESPONSIBILITY FOR COSTS 7
2.7 TAXES 7
2.8 CONFIDENTIALITY 7
2.9 ECONOMY OF PROPOSALS 7
2.10 OFFEROR CERTIFICATIONS 7
2.11 CONDITIONS REQUIRED FOR PARTICIPATION 7
2.12 LANGUAGE OF PROPOSAL 8
2.13 PROPOSAL SUBMISSION REQUIREMENTS 8
2.14 PACKAGING 8
2.15 OFFEROR'S AUTHORIZED NEGOTIATOR 9
2.16 AUTHORIZED SIGNATURE 9
2.17 EFFECTIVE PERIOD OF PROPOSAL 9
2.18 EXCEPTIONS 9
2.19 OFFEROR QUALIFICATIONS 9
2.20 RIGHT TO REJECT PROPOSALS 9
2.21 PRIME CONTRACTOR RESPONSIBILITY 9
2.22 AWARD 10
2.23 COMPLETE SERVICES 10
2.24 INVOICING AND PAYMENT 10
SECTION 3: PROPOSAL FORMAT AND CONTENT 11
3.1 EXECUTIVE SUMMARY 11
3.2 U.S. FIRM INFORMATION 12
3.3 ORGANIZATIONAL STRUCTURE, MANAGEMENT, AND KEY PERSONNEL 12
3.4 TECHNICAL APPROACH AND WORK PLAN 12
3.5 EXPERIENCE AND QUALIFICATIONS 13
SECTION 4: AWARD CRITERIA 14

ANNEX 1 FEDBIZOPPS ANNOUNCEMENT
ANNEX 2 PORTIONS OF BACKGROUND DEFINITIONAL MISSION REPORT
ANNEX 3 USTDA NATIONALITY REQUIREMENTS
ANNEX 4 USTDA GRANT AGREEMENT, INCLUDING MANDATORY CONTRACT CLAUSES
ANNEX 5 TERMS OF REFERENCE (FROM USTDA GRANT AGREEMENT)
ANNEX 6 U.S. FIRM INFORMATION FORM

SECTION 1: INTRODUCTION

The U.S. Trade and Development Agency ("USTDA") has provided a grant in the amount of US$742,380 to INGENDEHSA, S.A. de C.V. ("INGENDEHSA") (the "Grantee") of El Salvador (the "Host Country") in accordance with a grant agreement dated August 27, 2012 (the "Grant Agreement"), to fund a feasibility study ("Feasibility Study") for the Ilopango-Aguacayo Hydropower Project (the "Project"). This Feasibility Study will support the development of a 17 MW hydropower facility on Lake Ilopango in El Salvador. The Grant Agreement is attached at Annex 4 for reference. The Grantee is soliciting technical proposals from qualified U.S. firms to provide expert consulting services to perform the Feasibility Study.

1.1 BACKGROUND SUMMARY

Founded in 2000, INGENDEHSA is a private Salvadoran engineering firm with experience in developing hydropower projects in El Salvador, Honduras, and Panama. INGENDEHSA holds a permit from El Salvador's electricity regulatory body (SIGET – Superintendencia General de Electricidad y Telecomunicaciones) to study and develop the Ilopango-Aguacayo Hydropower Project. The project location at Lake Ilopango is about 20 miles southeast of San Salvador, the country's capital and largest city. The project would utilize the storage area and inflow of Lake Ilopango for its water source and would release the water into the Aguacayo River. The generating capacity of the project would be 17 MW and the project is expected to produce an average of 56 million kilowatt-hours per year.

In addition to becoming an important source of renewable hydropower, the project would allow for greater flood control by providing an alternative water outflow source. The lake's current primary outlet (the Desague River) has been blocked at least twice in the last decade by landslides caused by periods of heavy rain. Blockage of the lake's primary outlet causes the lake level to rise and flood surrounding residences and businesses.

The Feasibility Study would allow INGENDEHSA to gather key geological, geotechnical, hydrological, and topographical data, record baseline environmental conditions, complete environmental impact assessment requirements, and develop preliminary project designs.

The Project supports the Obama Administration's Energy and Climate Partnership of the Americas, as well as the Partnership for Growth agreement that was signed in November 2011 to support economic development efforts in El Salvador.

Portions of a background Definitional Mission report are provided for reference in Annex 2.

1.2 OBJECTIVE

The objective of this Feasibility Study is to conduct detailed technical and environmental assessments to support the development of a 17 MW hydropower facility on Lake Ilopango in El Salvador.

The Terms of Reference ("TOR") for this Feasibility Study are attached as Annex 5.

1.3 PROPOSALS TO BE SUBMITTED

Technical proposals are solicited from interested and qualified U.S. firms. The administrative and technical requirements as detailed throughout the Request for Proposals ("RFP") will apply. Specific proposal format and content requirements are detailed in Section 3.

The amount for the contract has been established by a USTDA grant of US$742,380. **The USTDA grant of US$742,380 is a fixed amount. Accordingly, COST will not be a factor in the evaluation and therefore, cost proposals should not be submitted**. Upon detailed evaluation of technical proposals, the Grantee shall select one firm for contract negotiations.

1.4 CONTRACT FUNDED BY USTDA

In accordance with the terms and conditions of the Grant Agreement, USTDA has provided a grant in the amount of US$742,380 to the Grantee. The funding provided under the Grant Agreement shall be used to fund the costs of the contract between the Grantee and the U.S. firm selected by the Grantee to perform the TOR. The contract must include certain USTDA Mandatory Contract Clauses relating to nationality, taxes, payment, reporting, and other matters. The USTDA nationality requirements and the USTDA Mandatory Contract Clauses are attached at Annexes 3 and 4, respectively, for reference.

SECTION 2: INSTRUCTIONS TO OFFERORS

2.1 PROJECT TITLE

The Project is called the "Ilopango-Aguacayo Hydropower Project."

2.2 DEFINITIONS

Please note the following definitions of terms as used in this RFP:

The term "Request for Proposals" means this solicitation of a formal technical proposal, including qualifications statement.

The term "Offeror" means the U.S. firm, including any and all subcontractors, which responds to the RFP and submits a formal proposal and which may or may not be successful in being awarded this procurement.

2.3 DEFINITIONAL MISSION REPORT

USTDA sponsored a Definitional Mission to address technical, financial, sociopolitical, environmental, and other aspects of the proposed Project. Portions of the report are attached at Annex 2 for background information only. Please note that the TOR referenced in the report are included in this RFP as Annex 5.

2.4 EXAMINATION OF DOCUMENTS

Offerors should carefully examine this RFP. It will be assumed that Offerors have done such inspection and that through examinations, inquiries, and investigation they have become familiarized with local conditions and the nature of problems to be solved during the execution of the Feasibility Study.

Offerors shall address all items as specified in this RFP. Failure to adhere to this format may disqualify an Offeror from further consideration.

Submission of a proposal shall constitute evidence that the Offeror has made all the above mentioned examinations and investigations, and is free of any uncertainty with respect to conditions which would affect the execution and completion of the Feasibility Study.

2.5 PROJECT FUNDING SOURCE

The Feasibility Study will be funded under a grant from USTDA. The total amount of the grant is not to exceed US$742,380.

2.6 RESPONSIBILITY FOR COSTS

Offeror shall be fully responsible for all costs incurred in the development and submission of the proposal. Neither USTDA nor the Grantee assumes any obligation as a result of the issuance of this RFP, the preparation or submission of a proposal by an Offeror, the evaluation of proposals, final selection, or negotiation of a contract.

2.7 TAXES

Offerors should submit proposals that note that in accordance with the USTDA Mandatory Contract Clauses, USTDA grant funds shall not be used to pay any taxes, tariffs, duties, fees, or other levies imposed under laws in effect in the Host Country.

2.8 CONFIDENTIALITY

The Grantee will preserve the confidentiality of any business proprietary or confidential information submitted by the Offeror, which is clearly designated as such by the Offeror, to the extent permitted by the laws of the Host Country.

2.9 ECONOMY OF PROPOSALS

Proposal documents should be prepared simply and economically, providing a comprehensive yet concise description of the Offeror's capabilities to satisfy the requirements of the RFP. Emphasis should be placed on completeness and clarity of content.

2.10 OFFEROR CERTIFICATIONS

The Offeror shall certify (a) that its proposal is genuine and is not made in the interest of, or on behalf of, any undisclosed person, firm, or corporation, and is not submitted in conformity with, and agreement of, any undisclosed group, association, organization, or corporation; (b) that it has not directly or indirectly induced or solicited any other Offeror to put in a false proposal; (c) that it has not solicited or induced any other person, firm, or corporation to refrain from submitting a proposal; and (d) that it has not sought by collusion to obtain for itself any advantage over any other Offeror or over the Grantee or USTDA or any employee thereof.

2.11 CONDITIONS REQUIRED FOR PARTICIPATION

Only U.S. firms are eligible to participate in this tender. However, U.S. firms may utilize subcontractors from the Host Country for up to 20 percent of the amount of the USTDA grant for specific services from the TOR identified in the subcontract. USTDA’s nationality requirements, including definitions, are detailed in Annex 3.

2.12 LANGUAGE OF PROPOSAL

All proposal documents shall be prepared and submitted in English and Spanish.

2.13 PROPOSAL SUBMISSION REQUIREMENTS

The Cover Letter in the proposal must be addressed to:

José Hermes Landaverde García
Director Presidente
INGENDEHSA, S.A. de C.V.
Av. 1, Pol. E., Casa No. 6
Brisas de San Francisco
Col. Lomas de San Francisco III Etapa
San Salvador
El Salvador
Phone: + (503) 2273-6243

An original in English, an original in Spanish, one (1) copy in English, and three (3) copies in Spanish of your proposal must be received at the above address no later than 4:00 PM, on October 31, 2012.

Proposals may be either sent by mail, overnight courier, or hand-delivered. Whether the proposal is sent by mail, courier, or hand-delivered, the Offeror shall be responsible for actual delivery of the proposal to the above address before the deadline. Any proposal received after the deadline will be returned unopened. The Grantee will promptly notify any Offeror if its proposal was received late.

Upon timely receipt, all proposals become the property of the Grantee.

2.14 PACKAGING

Each original and each copy of the proposal must be sealed to ensure confidentiality of the information. The proposals should be individually wrapped and sealed, and labeled for content, including the name of the project and designation of "original" or "copy number x." The original in English, the original in Spanish, one (1) copy in English, and three (3) copies in Spanish should be collectively wrapped and sealed, and clearly labeled, including the contact name and the name of the project.

Neither USTDA nor the Grantee will be responsible for premature opening of proposals not properly wrapped, sealed, and labeled.

2.15 OFFEROR'S AUTHORIZED NEGOTIATOR

The Offeror must provide the name, title, address, telephone number, e-mail address, and fax number of the Offeror's authorized negotiator. The person cited shall be empowered to make binding commitments for the Offeror and its subcontractors, if any.

2.16 AUTHORIZED SIGNATURE

The proposal must contain the signature of a duly authorized officer or agent of the Offeror empowered with the right to bind the Offeror.

2.17 EFFECTIVE PERIOD OF PROPOSAL

The proposal shall be binding upon the Offeror for ninety (90) days after the proposal due date, and the Offeror may withdraw or modify this proposal at any time prior to the due date upon written request, signed in the same manner and by the same person who signed the original proposal.

2.18 EXCEPTIONS

All Offerors agree by their response to this RFP announcement to abide by the procedures set forth herein. No exceptions shall be permitted.

2.19 OFFEROR QUALIFICATIONS

As provided in Section 3, Offerors shall submit evidence that they have relevant past experience and have previously delivered advisory, feasibility study, technical assistance, and/or other services similar to those required in the TOR, as applicable.

2.20 RIGHT TO REJECT PROPOSALS

The Grantee reserves the right to reject any and all proposals.

2.21 PRIME CONTRACTOR RESPONSIBILITY

Offerors have the option of subcontracting parts of the services they propose. The Offeror's proposal must include a description of any anticipated subcontracting arrangements, including the name, address, and qualifications of any subcontractors. USTDA nationality provisions apply to the use of subcontractors and are set forth in detail in Annex 3. The successful Offeror shall cause appropriate provisions of its contract, including all of the applicable USTDA Mandatory Contract Clauses, to be inserted in any subcontract funded or partially funded by USTDA grant funds.

2.22 AWARD

The Grantee shall make an award resulting from this RFP to the best qualified Offeror, on the basis of the evaluation factors set forth herein. The Grantee reserves the right to reject any and all proposals received.

2.23 COMPLETE SERVICES

The successful Offeror shall be required to (a) provide local transportation, office space, and secretarial support required to perform the TOR if such support is not provided by the Grantee; (b) provide and perform all necessary labor, supervision, and services; and (c) in accordance with best technical and business practice, and in accordance with the requirements, stipulations, provisions, and conditions of this RFP and the resultant contract, execute and complete the TOR to the satisfaction of the Grantee and USTDA.

2.24 INVOICING AND PAYMENT

Deliverables under the contract shall be delivered on a schedule to be agreed upon in a contract with the Grantee. The Contractor may submit invoices to the designated Grantee Project Director in accordance with a schedule to be negotiated and included in the contract. After the Grantee's approval of each invoice, the Grantee will forward the invoice to USTDA. If all of the requirements of USTDA's Mandatory Contract Clauses are met, USTDA shall make its respective disbursement of the grant funds directly to the U.S. firm in the United States. All payments by USTDA under the Grant Agreement will be made in U.S. currency. Detailed provisions with respect to invoicing and disbursement of grant funds are set forth in the USTDA Mandatory Contract Clauses attached in Annex 4.

SECTION 3: PROPOSAL FORMAT AND CONTENT

To expedite proposal review and evaluation, and to assure that each proposal receives the same orderly review, all proposals must follow the format described in this section.

Proposal sections and pages shall be appropriately numbered and the proposal shall include a Table of Contents. Offerors are encouraged to submit concise and clear responses to the RFP. Proposals shall contain all elements of information requested without exception. Instructions regarding the required scope and content are given in this section. The Grantee reserves the right to include any part of the selected proposal in the final contract.

The proposal shall consist of a technical proposal only. A cost proposal is NOT required because the amount for the contract has been established by a USTDA grant of US$742,380 which is a fixed amount.

Offerors shall submit one (1) original in English, one (1) original in Spanish, one (1) copy in English, and three (3) copies in Spanish of the proposal. Proposals received by fax cannot be accepted.

Each proposal must include the following:

Transmittal Letter,
Cover/Title Page,
Table of Contents,
Executive Summary,
Firm Background Information,
Completed U.S. Firm Information Form,
Organizational Structure, Management Plan, and Key Personnel,
Technical Approach and Work Plan, and
Experience and Qualifications.

Detailed requirements and directions for the preparation of the proposal are presented below.

3.1 EXECUTIVE SUMMARY

An Executive Summary should be prepared describing the major elements of the proposal, including any conclusions, assumptions, and general recommendations the Offeror desires to make. Offerors are requested to make every effort to limit the length of the Executive Summary to no more than five (5) pages.

3.2 U.S. FIRM INFORMATION

A U.S. Firm Information Form in .pdf fillable format is attached at the end of this RFP in Annex 6. The Offeror must complete the U.S. Firm Information Form and include the completed U.S. Firm Information Form with its proposal.

3.3 ORGANIZATIONAL STRUCTURE, MANAGEMENT, AND KEY PERSONNEL

Describe the Offeror's proposed project organizational structure. Discuss how the project will be managed including the principal and key staff assignments for this Feasibility Study. Identify the Project Manager who will be the individual responsible for this project. The Project Manager shall have the responsibility and authority to act on behalf of the Offeror in all matters related to the Feasibility Study.

Provide a listing of personnel (including subcontractors) to be engaged in the project, including both U.S. and local subcontractors, with the following information for key staff: position in the project; pertinent experience, curriculum vitae; other relevant information. If subcontractors are to be used, the Offeror shall describe the organizational relationship, if any, between the Offeror and the subcontractor.

A manpower schedule and the level of effort for the project period, by activities and tasks, as detailed under the Technical Approach and Work Plan shall be submitted. A statement confirming the availability of the proposed Project Manager and key staff over the duration of the project must be included in the proposal.

3.4 TECHNICAL APPROACH AND WORK PLAN

Describe in detail the proposed Technical Approach and Work Plan (the "Work Plan"). Discuss the Offeror's methodology for completing the project requirements. Include a brief narrative of the Offeror's methodology for completing the tasks within each activity series. Begin with the information gathering phase and continue through delivery and approval of all required reports.

Prepare a detailed schedule of performance that describes all activities and tasks within the Work Plan, including periodic reporting or review points, incremental delivery dates, and other project milestones.

Based on the Work Plan, and previous project experience, describe any support that the Offeror will require from the Grantee. Detail the amount of staff time required by the Grantee or other participating agencies and any work space or facilities needed to complete the Feasibility Study.

3.5 EXPERIENCE AND QUALIFICATIONS

Provide a discussion of the Offeror's experience and qualifications that are relevant to the objectives and TOR for the Feasibility Study. If a subcontractor(s) is being used, similar information must be provided for the prime and each subcontractor firm proposed for the project. The Offeror shall provide information with respect to relevant experience and qualifications of key staff proposed. The Offeror shall include letters of commitment from the individuals proposed confirming their availability for contract performance.

As many as possible but not more than six (6) relevant and verifiable project references must be provided for each of the Offeror and any subcontractor, including the following information:

Project name,
Name and address of client (indicate if joint venture),
Client contact person (name/position/current phone and fax numbers),
Period of Contract,
Description of services provided,
Dollar amount of Contract, and
Status and comments.

Offerors are strongly encouraged to include in their experience summary primarily those projects that are similar to the Feasibility Study as described in this RFP.

SECTION 4: AWARD CRITERIA

Individual proposals will be initially evaluated by a Procurement Selection Committee of representatives from the Grantee. The Committee will then conduct a final evaluation and completion of ranking of qualified Offerors. The Grantee will notify USTDA of the best qualified Offeror, and upon receipt of USTDA's no-objection letter, the Grantee shall promptly notify all Offerors of the award and negotiate a contract with the best qualified Offeror. If a satisfactory contract cannot be negotiated with the best qualified Offeror, negotiations will be formally terminated. Negotiations may then be undertaken with the second-most qualified Offeror and so forth.

The selection of the Contractor will be based on the following criteria and their corresponding assigned weights:

1. Technical Approach and Work Plan (40 points): Adequacy, soundness, and thoroughness of the Offeror's proposed Technical Approach and Work Plan.

2. Technical Experience (30 points): Offeror's experience with Project-relevant hydroelectric, geological, geotechnical, seismicity, hydrological, topographical, environmental impact, and social impact assessments. Offeror's experience with Project-relevant engineering, layout, and design.

3. International and Regional Experience (20 points): Offeror's familiarity and experience on similar international projects, particularly in North and Central America. Offeror's experience and ability to work in the Spanish language.

4. Schedule (10 points): Offeror's proposed schedule of performance.

Proposals that do not include all requested information may be considered non-responsive.

Price will not be a factor in Contractor selection.

A N N E X 1

FEDBIZOPPS ANNOUNCEMENT

José Hermes Landaverde García
Director Presidente
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Phone: + (503) 2273-6243

B – El Salvador: Ilopango-Aguacayo Hydropower Project Feasibility Study

POC: Anthony O'Tapi, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. Ilopango-Aguacayo Hydropower Project Feasibility Study, El Salvador.

The Grantee (INGENDEHSA, S.A. de C.V.) invites submission of qualifications and proposal data (collectively referred to as the "Proposal") from interested U.S. firms that are qualified on the basis of experience and capability to conduct a Feasibility Study for the Ilopango-Aguacayo Hydropower Project.

The objective of this Feasibility Study is to conduct detailed technical and environmental assessments to support the development of a 17 MW hydropower facility on Lake Ilopango in El Salvador. The Feasibility Study would allow the Grantee to gather key geological, geotechnical, hydrological, and topographical data, record baseline environmental conditions, complete environmental impact assessment requirements, and develop preliminary project designs.

The U.S. firm selected will be paid in U.S. dollars from a $742,380 grant to the Grantee from the U.S. Trade and Development Agency ("USTDA").

A detailed Request for Proposals ("RFP"), which includes requirements for the Proposal, the Terms of Reference, and portions of a background Definitional Mission report are available from USTDA, at 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901. To request the RFP in PDF format, please go to:

https://www.ustda.gov/businessopps/rfpform.asp.

Requests for a mailed hardcopy version of the RFP may also be faxed to the IRC, USTDA at 703-875-4009. In the fax, please include your firm's name, contact person, address, and telephone number. Some firms have found that RFP materials sent by U.S. mail do not reach them in time for preparation of an adequate response. Firms that want USTDA to use an overnight delivery service should include the name of the delivery service and your firm's account number in the request for the RFP. Firms that want to send a courier to USTDA to retrieve the RFP should allow one hour after faxing the request to USTDA before scheduling a pick-up. Please note that no telephone requests for the RFP will be honored. Please check your internal fax verification receipt. Because of

the large number of RFP requests, USTDA cannot respond to requests for fax verification. Requests for RFPs received before 4:00 PM will be mailed the same day. Requests received after 4:00 PM will be mailed the following day. Please check with your courier and/or mail room before calling USTDA.

Only U.S. firms and individuals may bid on this USTDA financed activity. Interested firms, their subcontractors and employees of all participants must qualify under USTDA's nationality requirements as of the due date for submission of qualifications and proposals and, if selected to carry out the USTDA-financed activity, must continue to meet such requirements throughout the duration of the USTDA-financed activity. All goods and services to be provided by the selected firm shall have their nationality, source, and origin in the U.S. or host country. The U.S. firm may use subcontractors from the host country for up to 20 percent of the USTDA grant amount. Details of USTDA's nationality requirements and mandatory contract clauses are also included in the RFP.

Interested U.S. firms should submit their Proposal in English and Spanish directly to the Grantee by **4:00 PM (local time in El Salvador), October 24, 2012**, at the above address. Evaluation criteria for the Proposal are included in the RFP. Price will not be a factor in Contractor selection, and therefore, cost proposals should NOT be submitted. The Grantee reserves the right to reject any and/or all Proposals. The Grantee also reserves the right to contract with the selected firm for subsequent work related to the project. The Grantee is not bound to pay for any costs associated with the preparation and submission of Proposals.

A N N E X 2

PORTIONS OF BACKGROUND DEFINITIONAL MISSION REPORT

H&M ENGINEERING, INC.
Engineering & Management Services

4521 Alpine Rose Bend
Ellicott City, Maryland 21042
Phone: (410) 465-6970

Definitional Mission for LAC Regional –

Hydroelectric Power Projects in Central America

Solicitation Number: RFQ-CO201151094

FINAL REPORT

February 2012

VOLUME 1
ILOPANGO-AGUACAYO PROJECT
EL SALVADOR

This report was funded by the U.S. Trade and Development Agency (USTDA), an agency of the U.S. Government. The opinions, findings, conclusions, or recommendations expressed in this document are those of the author(s) and do not necessarily represent the official position or policies of USTDA. USTDA makes no representation about, nor does it accept responsibility for, the accuracy or completeness of the information contained in this report.

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Phone: 703-875-4357 • **Fax:** 704-875-4009 • **Web site:** www.ustda.gov • **email:** info@ustda.gov

The U.S. Trade and Development Agency

The U.S. Trade and Development Agency (USTDA) helps American companies create U.S. jobs through the export of U.S. goods and services for priority development projects in emerging economies. USTDA links U.S. businesses to export opportunities by funding project planning activities, pilot projects, and reverse trade missions while simultaneously creating sustainable infrastructure and economic growth in partner countries.

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY 4

2 PROJECT DESCRIPTION 6

2.1 DESCRIPTION AND HISTORY OF PROJECT AND HOST COUNTRY 6

2.2 DETAILS 7

2.3 SPONSOR AND EXPERIENCE IN SECTOR 9

2.4 MATERIALS AND INFRASTRUCTURE REQUIREMENTS 9

2.5 TECHNICAL APPROACH AND IMPLEMENTATION SCHEDULE 10

2.6 ECONOMIC FUNDAMENTALS 12

3 SPONSOR'S CAPABILITIES 14

4 IMPLEMENTATION FINANCING 15

4.1 POTENTIAL LENDERS 15

4.2 POTENTIAL EQUITY 16

5 EXPORT POTENTIAL, FOREIGN COMPETITION and MARKET ENTRY 18

6 DEVELOPMENT IMPACTS 21

7 IMPACT ON THE ENVIRONMENT 23

8 IMPACT ON U.S. LABOR 25

9 QUALIFICATIONS OF SPONSORS FEASIBILITY STUDY TEAM 26

10 TERMS OF REFERENCE 27

10.1 PURPOSE AND OBJECTIVES 27

10.2 PROPOSED TERMS OF REFERENCE – TECHNICAL AND ENVIRONMENTAL ANALYSIS 27

10.3 SCHEDULE 27

10.4 PROPOSED STUDY BUDGET 29

11 JUSTIFICATION 30

12 RECOMMENDATIONS 32

13 OTHER PROJECTS 33

APPENDICIES

A - PROJECT DRAWINGS
B - MONTHLY ENERGY PRICES

ABBREVIATIONS and ACRONYMS:

BMI	Multisectorial Bank of Investments
CABEI	Central American Bank for Economic Integration
CNE	National Energy Council
DM	Definitional Mission
DEE	Electrical Energy Directorate
DTA	Devine, Tarbell & Associates
EIA	Environmental Impact Assessment
Ex-Im	Export-Import Bank of the US
EPC	Engineering Procurement Construction
GW	Gigawatt (=1000 megawatt)
GWh	Gigawatt hours
IADB	Inter-American Development Bank
IAP	Ilopango-Aguacayno Project
KM	Kilometer
MARN	Ministry of Environment and Natural Resources
MASL	Meters Above Sea Level
MW	Mega Watt
MWH	Montgomery Watson Harza
NPV	Net Present Value
OPIC	Overseas Private Investment Corporation
PPA	Power Purchase Agreement
RPS	Renewable Portfolio Standard
S.A.	Anonymous Society (incorporated)
SIGET	Superintendent General of Electricity & Telecommunications
TBM	Tunnel Boring Machine
USEPA	U.S. Environmental Protection Agency
USTDA	U.S. Trade and Development Agency
UT	Unidad de Transacciones

1 EXECUTIVE SUMMARY

This report presents the findings of a Definitional Mission for two hydroelectric projects in Central America. The subject of this report, Volume 1 is the Ilopango-Aguacayo Project, a proposed hydroelectric project in El Salvador. The sponsor of the project, INGENDEHSA, S.A. de C.V. applied for feasibility funding. The project was identified as a potential candidate for support in an earlier USTDA Definitional Mission in 2009.

The project is defined by a pre-feasibility study and report by the sponsor. The proposed project includes a new intake and outlet facilities on natural Lake Ilopango, which is not far from San Salvador. The lake is in the caldera of an inactive volcano. The lake outlet, the Desague River, has been blocked twice in the last decade by slides induced by heavy rain and an earthquake. The blockage causes high lake levels and a downstream hazardous situation.

The intake works feed a long water conveyance to a powerhouse on the Aguacayo River. The water conveyance consists of tunnel and penstock totaling about 7.3 kilometers (4.5 miles) long. The Aguacayo River and Desague Rivers are both part of the Jiboa River system. The generation water will provide a powerhouse with high-pressure Pelton turbines, with a total capacity of about 17 MW. The project is estimated to generate about 56 million kilowatt-hours during an average year. The project can peak its flows, but the peaking will cause a relatively small amount of lake level change. The allowable change must be studied to determine frequency, magnitude and possible impacts.

El Salvador has high electricity costs and is in the process of trying to develop more cost effective and renewable energy. A considerable amount of the power in the system is fueled by Bunker C, which is low grade petroleum distillate. As more cost competitive projects come on line, these projects will retire or be used less, lowering the costs of power in the country.

The electrical sector has been reformed to a market type. Retail distribution companies are contracting for their capacity needs and the system is then dispatched on an economic basis. There are not likely to be more reforms in the system and none are needed at this time, as the system continues to evolve under the laws and rules in place.

The country is also looking towards promoting renewable energy generating plants. The National Energy Council is working toward a policy that may include a Renewable Portfolio Standard. The Ilopango-Aguacayo Project would be very competitive under a RPS tender. It could also compete against some imported thermal alternatives. Other power sales possibilities are the energy market and a direct power purchase agreement with one of the Distribution Companies.

There is ample financing for projects like Ilopango-Aguacayo in El Salvador. Multi-lateral banks are eager to lend to competitive renewable projects, but there have not been many in El

Salvador recently, particularly in the private sector. If the project proves feasible, funding in both debt and equity forms seem readily available.

The project cost estimate from the pre-feasibility study and increased somewhat for this evaluation is about $48 million. Of that, there are three general opportunities for U.S. sector participation. In the area of services, the project contracts would be worth up to about $2.5 million. U.S. companies have been successful in participating in this sort of services work in Central America.

The equipment for the project may be on the order of $10 million. However, the outlook for U.S. equipment to be sold is less optimistic. The major multi-national suppliers, who service the Central American, do so from locations other than their U.S. offices. There is only one U.S. domestic supplier at this time who would be competitive. They have already been in contact with the sponsor and provided a budget quotation.

The U.S. hydropower and heavy civil construction industry has not been active in much of the hydropower boom in Central America. However, there seems to be changing interest as several companies gave positive responses and several are interested in working with the Sponsor. As some of the outside competition from Brazil, Spain and Italy are not as active in El Salvador, it could be an opportunity for a U.S. company to enter the market. The Engineering-Procurement-Construction contract for the civil works is likely to be on the order of $25-30 million.

The Feasibility Study proposed for the project will have a large environmental content because little has been done to study the resource to date. The feasibility study would have two phases, the first focusing on an environmental baseline and basic geotech, hydrology and topographical data to prove that the project is feasible. The second phase would include subsurface geological exploration; more focused environmental assessment and mitigation planning as well as further design of the project to full definition.

The Feasibility Study as defined in the Terms of Reference in this report would take about 11 months with estimated costs of $742,380.

The project is recommended for consideration for funding by USTDA. The project does not have any conflicts with U.S. Labor and if the U.S. Companies get involved on the services end, there is more opportunity for U.S. investors and construction contractors to be involved.

The project will provide a long term, valuable resource to the energy supply mix in El Salvador and possibly provide other benefits in the provision of an alternative source of outflow for the problematic Lake Ilopango landslides.

2 PROJECT DESCRIPTION

The Ilopango-Aguacayo Hydroelectric Project is proposed by the company INGENDEHSA, S.A. de C.V. The project location is about 20 miles southeast of the City of San Salvador in the country of El Salvador. The project was proposed first in 2010 by the sponsor and is under a permit for study issued by SIGET, the electricity and telecommunications regulatory authority of El Salvador. The capacity of the Ilopango-Aguacayo project is proposed to be 17 MW. It would utilize a new intake and outlet for the natural Lake Ilopango, releasing the flow in to a downstream river.

2.1 DESCRIPTION AND HISTORY OF PROJECT AND HOST COUNTRY

The Ilopango-Aguacayo Project (IAP) is a new proposal that would consist of a new intake constructed on the shore of Lake Ilopango. Lake Ilopango is a large natural lake which exists in the caldera of an ancient volcano. The lake has a surface area of 70 km² (27.2 square miles) and a drainage area of about 204.8 km² (79 square miles). The lake has several small rivers flowing in and one significant river, the Desague River, flowing out. The typical lake elevation is now at about 440.1 meters (MASL) and varies with rainfall and outflow level. The lake is very deep and no one is clear on the bottom profile. Some suspect it is 1,000 feet deep.

The natural Desague River outlet has been blocked twice in the last decade, once due to an earthquake and once due to heavy rainfall. With the lake outlet blocked, the lake level has risen, flooding lake side properties and businesses and causing an emergency situation for the governmental authorities to address. In the most recent blockage due to Hurricane Ida in November 2009, the cost to address the problem was estimated to be as much as $17 million.

The Desague River flows into the much larger Jiboa River about 7 km (4.3 miles) from the outlet of Lake Ilopango.

The IAP filed an application for a study permit with SIGET, the regulatory body for power projects in El Salvador. SIGET issued the permit on 18 February 2010 for a period ending on 30 June 2011. The SIGET permit has been extended until 30 December 2012. During the period, the permit holder has the exclusive right to study the project and subsequent protection in filing for a concession with SIGET.

INGENDEHSA has completed a pre-feasibility study dated 24 July 2010. The study compiles and evaluates existing information and indicates that a project is viable and worthy of a feasibility study. Key issues and elements of the feasibility study are defined by the pre-feasibility study and report. INGENDEHSA has in the interim, sought funding sources for conducting further studies including the application to USTDA. As of the date of this report, the additional studies have not been undertaken, except for a few small items.

2.2 DETAILS

The details of the project outlined by the pre-feasibility study are:

- Construction of a water intake structure with a bottom intake elevation of 426.5 MASL, capable of taking water from the normal intake level of 440.1 down to a minimum level of 433.3 meters.
- A pressure tunnel, 3.5 meters (11.5 feet) in diameter and 2.7 kilometers (1.7 miles) in length. The tunnel will go beneath the mountain corridor which surrounds the lake.
- Pressure penstock made of ¾" steel plate, 2.25 meter (7.4 feet) in diameter and 4.6 kilometers (2.8 miles) long. The penstock would be primarily buried. The penstock may also require a surge tank, depending on the ultimate design and selection of equipment.
- A powerhouse will contain two generating units. The generating units will be comprised of Pelton turbines and generators. The powerhouse would also include valves, controls and switchgear for operating the units.
- A switchyard with transformers and switching equipment to connect to a transmission line to the grid.
- The powerhouse releases will go in to the Aguacayo River which flows in to the Tilapa River. The Tilapa River merges in to the Jiboa River 23 km (14.2 miles) downstream of the Desague/Jiboa River confluence.
- A transmission line of about 12 km (7.4 miles) to connect to lines of enough voltage to interconnect with the grid.

The project would utilize the substantial storage area and inflow of Lake Ilopango for its source and release the water in to the Aguacayo River. The gross head on the project is 230 meters (754 feet) which places it in to the high head category. At a proposed design flow of 9.0 cubic meters/second (318 cubic feet/second) the plant output would be about 17 MW. During the height of the wet season, the project would run at full output. During the dry season, the project proposes to peak flows in to the 4-5 hour peak period of the day with some minimum release generation the remainder of the day. The peaking of the project would introduce some changes in the lake level, which the sponsor estimates as a maximum of 10 centimeters or about 4 inches during the dry season.

The project would generate about 56 GWh in an average hydrology year. If 4 hours of peak power were provided daily, the total generation would be about 15 GWh on peak and 41 GWh off peak. Value of power is high in El Salvador and is discussed in further detail in Section 2.6.

The costs estimated in the pre-feasibility report for the project are about $42.5 million. The cost estimate details from the pre-feasibility report are provided in Appendix A, along with a map and profile of the civil works. Both the proposed project works and the cost estimate are reasonable and generally inclusive. However, the contingency is small for a project without a feasibility study, the transmission line estimate seems low and the project costs are highly

dependent on commodity costs and inflation. Since mid-2010, the costs of fuel have risen substantially, which would likely boost the cost of the total estimate. There are also substantial development costs, such as the feasibility study, that are not included. A better estimate that would include these items with some price escalation is about $48 million. In a more recent data sheet, INGENDHESA suggested the costs would be about $50 million, with everything included.

The project use of Lake Ilopango waters will likely raise questions and it is important that accurate information by the sponsor be provided to the public before inaccurate portrayals of the project occur, such as "draining of the lake" or other inaccurate items.

El Salvador is supportive of renewable energy in general. The resources are somewhat limited. They do not believe that the wind resource can make a substantial contribution in the future. Solar resources are more abundant but remain expensive due to the equipment involved. Hydropower and geothermal exist and currently contribute to the energy supply. The National Energy Council (CNE) stated that the thermal/renewable energy mix was currently 55%/45% and their target was to reverse the mix to 45%/55%. The expected increases would be primarily hydro and geothermal. However, there is currently in progress an all source bid for 350 MW of capacity which is needed by the three distribution companies. These companies have combined for the bid, with one company, Del Sur taking an administrative lead. Bids are due in December 2011. All sources except for petroleum are allowed. The general expectation between the companies and CNE is that some combination of proposed natural gas (liquefied natural gas including a new terminal), coal and/or imported power may be successful. There may be room for hydropower or other renewable resources, but they do not believe any of the significant projects are far enough developed to meet the conditions of the bid.

IAP may participate in the bid but may not be far enough along in the development process to make the guarantees required by the bid.

However, even absent the current bid, there are opportunities for a project the size and nature of IAP to sign a power purchase agreement directly with one of the distribution companies. The CNE is working on a policy and regulations that would encourage and give incentives to renewable projects, including IAP. The policy and regulations are drafted, but are not currently available to the public, as they are not approved. The regulations are proposed to be completed later this year and will not require further legislative action. The regulations may well consist of Renewable Portfolio Standards which may result in a bid for renewable capacity and energy. The IAP seems to be well positioned for any new RPS if the feasibility study gets underway and completed.

2.3 SPONSOR AND EXPERIENCE IN SECTOR

INGENDHESA is a company located in San Salvador, with its primary activity providing engineering services to the hydropower industry in El Salvador and also on a number of projects in Panama and Honduras. The company with its specialty in hydropower is well placed to understand the technical and institutional arrangements necessary to plan, permit, finance and construct hydroelectric projects such as Ilopango-Aguacayo. The President and primary owner of INGENDESA is Ing. Jose Hermes Landaverde-Garćia. Sr. Landaverde has a background of work in the hydroelectric sector, including former employment with a U.S. Engineering Company, Harza (now MWH). He has relationships with several U.S. financial and hydropower entities, including engineering and construction companies, and has already established professional relationships with the various regulatory bodies in El Salvador.

While this project is clearly a high priority for the company and it has the knowledge to carry out the project, INGENDHESA as a services company apparently lacks the capital to provide the substantial amount of development capital and investment necessary to attract project financing.

As an example, the development bank, BCIE (also known in English as CABEI or Central American Bank for Economic Integration) has offered a loan in the amount of $510,000 for carrying out the feasibility study efforts. However, the BCIE loan requires a full bank guarantee for releasing the funds, which is only possible and attractive to a large corporate entity which could get the guarantee on its balance sheet, rather than an account with the full amount. Thus, without a large partner, the funds are not realistic for INGENDHESA.

2.4 MATERIALS AND INFRASTRUCTURE REQUIREMENTS

The IAP like most hydroelectric projects requires a substantial investment in generating equipment and a large effort in constructing civil works. In the case of IAP the key items are about $10 million for generating equipment which would all be imported. There would also be a tunnel, estimated at $5,000,000 which likely would require tunnel boring equipment or other major equipment for drilling the tunnel face. The third large part of the project will be the 2.9 miles of buried penstock. As a possible option to the penstock, it may be advantageous to utilize a high pressure tunnel, since there are advantages of operating one tunnel instead of penstock and the tunnel option may be less expensive and disruptive than the penstock.

Some access roads would be necessary for the project, although they would be fairly minimal for a project of this size. A road in to the lake area to provide intake construction would be necessary. It likely would consist of an upgrade and extension of an existing road. Along with disruption, it would increase traffic in the area, substantially during construction and likely afterward. However, better access would likely enhance tourism opportunity. Tunnels have been constructed in El Salvador previously but they have technical risk. Substantial geotechnical work will be necessary to make final decisions on the tunnel length and extent.

2.5 TECHNICAL APPROACH AND IMPLEMENTATION SCHEDULE

The project process for development is typical for a hydroelectric project. At this point, the pre-feasibility work is reasonably well developed, however a feasibility study developing the next steps is essential. The project needs to have key information developed in hydrology, topography, geology and environmental areas as well as final formulation and feasibility level design. In order to complete the works, it is recommended that the project under take a two stage feasibility process:

Phase 1:

Hydrology- The project hydrology work needs to be extended to analyze all of the available data, including the available outflow data and the longer rainfall record. A full numerical model of the lake level and potential operating schemes of project size, peak/off peak and differing minimum flows will be studied for more accurate sizing of the project and the impacts of the diversion and release to Aguacayo River.

Topography- Detailed topography of the water intake structure area and the powerhouse area will be developed. The lake's elevation/area/volume estimates and curves will be validated or modified. A topographical survey of the penstock alignment will be conducted to finalize the penstock alignment and compare it to the longer tunnel options.

Geology, Geotechnics and Seismicity - A full geologic map of the intake, tunnel and penstock alignment will be completed along with a more detailed investigation of the potential activity of fault lines and other key features. The full impact of the potential seismic nature of the area will be assessed on the project as proposed. The geology of the alignment will be studied for a decision on the choice between the tunnel/penstock as aligned and possible options including extending the tunnel for much of the water conveyance distance. Based on the findings, a sub-surface exploration program will be designed for Phase 2.

Environmental Studies – A baseline evaluation of the conditions at the intake, the powerhouse and the Desague and Aguacayo Rivers will be conducted so that the impacts of the IAP project can be assessed. Information to measure the impact of changing flows from the Desague to the Aguacayo Rivers will be developed. The residential, commercial (fishing), recreational and other uses of Lake Ilopango will be documented for impact assessment.

At the end of Phase 1, the project will be re-assessed to establish needs for re-formulation or changes to the proposed operations. The pre-feasibility cost estimate will be reviewed to re-confirm the attractiveness of the project.

Phase 2:

For Phase 2, the work will be focused on the field geotechnical program as well as utilizing these results and the other information from Phase 1 to establish the final elements of the

project. Sensitive environmental or social issues as well as the overall impacts of the project will be studied in detail with complete mitigation plans prepared for submittal along with the project application for a concession.

The Terms of Reference for the project is provided in a later section.

The full feasibility study should take approximately one year or slightly less. The first phase, including the initial gathering of data will take approximately 90 days.

Legal Issues, Regulatory Framework and Permit Process

The legal framework for private ownership of a project like IAP is in place and the market is sufficiently developed to support such a project, if it provides competitive power. The major action for constructing and operating a project is a concession from SIGET. SIGET is tasked with helping the renewable sector and they have clear and published regulations for securing a concession.

It is possible to request a study permit for the purpose of securing a concession. The permit gives the holder a priority of applying for the concession during the permit. INGENDHESA holds a permit for applying for the concession until 31 December 2012.

Upon receipt of the application for concession, SIGET forwards the feasibility study to the Ministry of Environment and Natural Resources (MARN). MARN has the responsibility to review the project for the overall social, environmental and development impacts of the project, including proposed mitigation works. SIGET performs its own evaluation of the technical, economic and financial aspects of the project. SIGET generally finds the projects acceptable, even if modified. However, they do not issue the concession until MARN provides them with a positive finding.

Currently, MARN is viewed as critical/key to project development. However, there are not many projects in the process awaiting their approval. Currently, there is a program of capacity building sponsored by USAID which has MARN working with the U.S. Environmental Protection Agency to gain access to experts to assist them in identifying and assessing impacts and mitigation of renewable resources. Should the RPS policy be implemented and the MARN/USEPA work be completed, it should enable timely review of the Ilopango-Aguacayo Project.

SIGET follows up on construction and operations after the concession to see that the project is moving forward in accordance with the schedule approved. Should the project not make appropriate progress, the concession can be revoked.

2.6 ECONOMIC FUNDAMENTALS

The economics of the IAP depend on the costs of development, market power value and cost of other options. The El Salvador electrical sector underwent substantial reform and restructuring in the past decade. Their market structure is one of both contracted and spot market sold energy. The market is administered by the Unidad de Transacciones (UT), who takes in to account the demands and resources of the market place and matches them in the most economic manner possible. The UT publishes a monthly report that documents energy used and sold for the prior month, including statistics of time and price. A chart attached from their March Statistical report, the latest available shows the average monthly market price for the last 15 months. Current and historical reports are available on their web site.

El Salvador has 1,300 MW of installed capacity to meet about 950 MW of maximum load. Of that amount, about 440 MW is hydro, 140 MW biomass, 200 MW geothermal and the remainder is diesel fueled by Bunker C. Bunker C is also called No. 6 fuel oil as it is generally the lowest product on the refinery scale and needs pre-heating before it is injected for combustion. Prices in the electricity market are very high because of the use of Bunker C and diesel generators.

The market is moving gradually to the electricity distribution companies (retail sellers) contracting for their capacity, then having the generators dispatched on an economic basis. Hydropower projects, particularly run-of-river projects, are dispatched always and are price takers, which means they get the marginal cost of the last added unit to the generation mix. Hydroelectric units do get some capacity credit but only as much as the historical hydrology can justify during the dry season.

Projects such as IAP would not get their full capabilities of peaking credited unless they can convince the UT and a distribution company of their ability to deliver on peak. However, once a Concession is issued, such capability would be clear.

As noted the prices of power in the market place are high. Appendix B contains an information page from the UT March Statistical Report showing the last 15 months of power prices in the market. Prices for the last three months have averaged over $150/MWh (15 cents/kWh) and for the past year, about $128/MWh. These prices have risen with the cost of oil products in April and early May. However, it is also reasonable to expect that prices will decrease somewhat with the bidding of the 350 MW and the pushing out of the Bunker C projects from the competitive mix.

The IAP project costs are estimated at $42,000,000. Operations and maintenance costs of such a project would be minimized, as there would be little intake maintenance, as the intake would be submerged with little debris removal necessary. The Pelton turbines can be operated in a relatively automatic operation. A reasonable estimate of O&M costs for the project, including an allowance for repairs/maintenance is $250,000.

The IAP may have three options available to it for selling project power.

1. The first option is selling all power to the spot market. As there are only small and legacy projects doing so, financing the project may prove difficult.
2. The project could also negotiate a power purchase agreement with one of the distribution companies. In this case the project would likely give a 10% or so discount over the purchase rate in exchange for some certainty.
3. The project could participate in a future RPS bid process and likely be very competitive over any competition.

It is reasonable to expect that the project could sign up for a power rate (melded) of $110/MWh. At this rate, the project has an overall internal rate of return of about 13%. The rate is with no financing. With 60-70% financing at about 8 or 9%, the internal rate of return would increase substantially. The project also has attractive features of being inflation resistant after construction and always being dispatched or at the low end of marginal cost. The project may also have some upside in capturing capacity credits or only dispatching dry season energy during the highest rate period of the day.

The project is one of limited renewable resources that are competitive with alternatives in El Salvador. Thus, if any environmental issues can be mitigated, the project is very likely to be constructed.

3 SPONSOR'S CAPABILITIES

The Sponsor for the Ilopango-Aguacayo Project is INGENDHESA, S.A de C.V. The company offers services to the hydroelectric industry in Central America. The company, which employs several engineers and technicians, does work primarily in El Salvador, Honduras and Panama. The company has worked on several hydroelectric projects as developers, aside from IAP.

The company has some of its experience roots in the U.S., as the President and principal engineer is Jose Hermes Landaverde-Garćia. Señor Landaverde has substantial experience in the hydropower industry and has worked on a number of projects in Central America over more than a decade. The company offers planning and construction management help to its clients. INGENDHESA will need additional assistance in a project of this scope due to the geotechnical requirements, environmental considerations and some of the other project aspects.

The sponsor, before applying to USTDA for the feasibility study funding, discussed potential relationships with several companies. Sr. Landaverde has previously worked for Harza in the U.S. (now MWH) and also has for some time discussed work possibilities with other U.S. based engineering services firms. He also had a preliminary agreement with a U.S. contractor who specializes in tunnel construction. The status of that agreement is not known. However, INGENDHESA was also in discussions with several entities in the U.S. for provision of development/equity capital for ultimate construction of the project. INGENDHESA has requested a budget quote for equipment from one domestic equipment supplier who has a specialty in Pelton-type turbines as needed for the project.

Most of the expertise that will come with the project will come from outside El Salvador. It is likely that other than construction labor and local supply of cement and other commodities, much of the project will be imported. Clearly, no entity within El Salvador manufactures the type of electro-mechanical equipment necessary. Further, for a civil works project including tunneling and penstock as well as the intake/powerhouse, it is likely necessary for outside contractors and supply for tunneling machinery and other works.

Finally, most lenders will want to see an Engineering/Procurement/Construction (EPC) type of contract, as the single responsibility for the project makes financing easier. It is possible the EPC could be split in to civil and electrical/mechanical contracts, but subcontracting will not likely go beyond two contracts for the major works. In that instance, a significant contractor with appropriate tunnel/penstock/water handling works will be needed as the major civil contractor. That contractor likely will be from outside El Salvador.

4 IMPLEMENTATION FINANCING

For typical projects in the renewable energy sector, financing is a combination of debt and equity. In typical financing the debt/equity split for total costs is 70 percent debt and 30 percent equity. For Ilopango-Aguacayo, and a project cost of $48,000,000, the equity requirement is about $14.4 million and the debt about $33.6 million.

For a project of this size, it is possible that several banks could be involved. During the visit to El Salvador, we discussed the project with three banks:

4.1 POTENTIAL LENDERS

Inter-American Development Bank (BID or IADB):

The project is marginally large enough to be of interest to them. They would like to support renewable energy in El Salvador but the project must be large enough and financially sound, with enough equity to complete the project. BID would participate in a project of up to 70-80% of total costs and provide up to 40% of that debt amount. They would work with other banks to provide the rest. The IAP is of interest to them.

Central American Bank for Economic Integration (CABEI or BCIE):

BCIE has already offered feasibility financing but it requires a full bank guarantee to lend. They are supportive of the energy sector in El Salvador, but have not had many opportunities to lend. They can provide a 12-15 year term with three years grace period for construction. They also have access to Global Environmental Fund and other UN program money for lending. They typically arrange a consortium of banks which then on-lend to the project. They currently are involved in financing the Chapparel Project (66 MW) which is under construction in El Salvador and are looking for projects like IAP which build company infrastructure.

Banco Multisectorial de Inversiones (BMI):

BMI is a national development bank that has special funds for energy projects and particularly renewable energy projects. Their financing is only up to $5 - $10 million so they would have to participate with other banks. They have funding provided by several sources. BMI also does large infrastructure projects, but IAP is too small for this sort of financing. BMI is working to become a first tier lending bank, which would allow them to work directly in a consortium of the sort CABEI or BID puts together.

We also held a discussion with:

Corporación Interamericana para el Financiamiento de Infraestructura S.A. (CIFI):

CIFI as its name implies provides infrastructure financing for project throughout Latin America and the Caribbean. They are an affiliate of IFC, the division of the World Bank. CIFI has

financed 8 hydroelectric projects in Latin America (Ecuador, Peru, Costa Rica, and Panama) in the last 7 years, totaling $250M so they do have relevant experience in the sector. In El Salvador, CIFI has a hard time competing due to a 30% withholding tax (i.e. tax on CIFI's earned interest payments) on foreign investors. This tax was created by local El Salvadorian banking interests to give them this financial advantage. Basically, because of this CIFI would most likely have to act as a 'silent' participator by structuring the loan with the lender of record (such as HSBC).

Other Potential Lenders:

Export-Import Bank:

The U.S. Ex-Im Bank is dedicated to assisting export of renewable energy equipment. However, on this project, it likely would be limited to one of the few domestic suppliers of the turbine and generator works. Since the other sources of financing would likely exhaust the debt potential of the project, Ex-Im could but probably would not play a critical role in this project.

Overseas Private Investment Corporation:

In the instance of participation of a U.S. investor, OPIC would possibly consider providing debt financing. However like U.S. Ex-Im, OPIC financing probably would not be as rapid or necessary due to the number of small hydro projects that have been financed already in Central America. OPIC would remain a possibility if banking market conditions changed.

Commercial Banks:

No commercial banks were directly visited in country; however, based on the responses from the multilateral banks, the commercial banks are willing to participate in their syndicated projects. Large banks like Nova Scotia Bank and HSBC are present in El Salvador. While we were present, Banco Agricola, a large Salvadoran bank announced a "breakfast" for those interested in the renewable energy sector, as they are interested in financing projects in that sector. The sponsor of IAP was invited.

4.2 POTENTIAL EQUITY

In order to bring the project forward to construction a substantial equity partner will be necessary. IAP has been in contact with many possible partners. Additionally, several have expressed interest in the project at an appropriate level of development. Typically, there can be three or four levels of development capital.

- First tier – like INGENDHESA, identifies the project, starts securing rights and pre-feasibility activity which justifies further investment in to the project.

- Second tier – pre-construction development capital, which in a project such as IAP could be $1-$1.5 million for feasibility, gaining permits, environmental studies and subsurface investigations.
- Third tier- investment at the time of construction either for project completion or longer term holding as an asset.
- Long term holding – invested in to the project for its long term benefits.

Typically, each tier of investor is taking additional risk and expects to have a higher return on investment than the following tier, often by a large margin. The stages of development are like venture capitalists who may sell to another institutional investor when the project is complete.

We have heard from four companies interested in equity investment in the project. However, these companies do not want to be identified with any particular project, as it impacts their business strategy or attracts competitors. In neighboring Central American countries, most notably Panama but also Guatemala and Costa Rica, there has been substantial private equity raised for hydropower project investment.

The estimated cost of the total project is about $48,000,000.

5 EXPORT POTENTIAL, FOREIGN COMPETITION AND MARKET ENTRY

The approximate $48 million in total investment at the project could include U.S. participation in several ways:

- Equipment supply, including turbine/generator, transformers, switching and controls: As noted in the prior section, projects of this magnitude either are constructed by one EPC contract which includes civil and mechanical/electrical or separate EPC contracts for each one. Thus, whomever sells the Turbine/Generator units will likely package most or all of the other equipment, either as a main or sub-supplier to the Civil EPC. The mechanical/electrical equipment supplier will not put an EPC wrap/guarantee on the Civil works. The amount of equipment contacts for this contract may be as much as $10,000,000.
- Services in Engineering/Construction Management/Environmental project support: Including the feasibility study, detailed design, environmental studies and permitting and construction management, the services work may be about $2,000,000. Without including the feasibility study, the potential for U.S. participation in the services part of the project may be about $1,500,000.
- Civil Construction: Includes the intake, tunnel, penstock powerhouse and other associated items such as access roads, transmission line and any mitigation measures. The total civil works EPC contract may be about $25-30 million.
- Investment of equity: The equity investment in the project will be on the order of $14-15 million. The equity investment is not an export, but likely has some influence on whether the components of the project are U.S. supplied, particularly the engineering.

Equipment Supply:

The equipment supply in Central America has been dominated by multi-national companies. Three of them that operate in the U.S. supply the market generally from outside the U.S.; in Mexico, Brazil or Europe. Two historically domestic companies, Weir American Hydro and Canyon Hydro are interested in the hydro market. Weir American at this time does not offer Pelton type turbines. Canyon has already provided a budget quote for the IAP. It is possible that one of the multinational suppliers (Voith, Alstom, Andritz and IMPSA) would contract from the U.S. if a U.S. construction company were pursuing an overall EPC. However, outside successful bid and equipment provision by Canyon turbines, it is likely that the primary equipment will be provided outside the U.S.

Outside of these companies, there are none that have the current capability for Pelton turbines of this magnitude in the U.S.

It is far more complex to consider, but it is quite possible U.S. companies will provide a large amount of construction equipment and electrical components. Even without direct electrical/mechanical supply, U.S. companies provide secondary level electrical equipment in the form of elements such as programmable controllers, relays, and a variety of other control devices. Companies that put together control and relay works for the prime equipment contract often use U.S. components. The value of the components alone in a project of this scope would be $300,000. A transformer would also add a similar cost/value.

Services Sector:

The Services Sector is currently more present and active in Central America. Companies including URS, MWH and Black and Veatch are all active in the region and all have offices and project there. Additionally, several companies are interested in the Central American/Hydro power market for services including Knight-Piesold, Jacobs Engineering and HDR/DTA. Other smaller niche companies may also be interested in providing services as subcontractors to these companies. Since the sponsor has a U.S. background and the major services for the project are likely to come from outside El Salvador, one of more of these companies would be competitive to work with INGENDHESA on the project. The amount of services would be in the range of $1-2.5 million depending on the assignment from feasibility through to construction.

There are not high entry barriers to services companies to enter in to overseas contracts such as Central America. Many companies team with small local firms to provide them with expertise and the stability to undertake large projects.

Civil Construction:

Civil Construction is an unusual situation for U.S. companies. Historically, there were several companies who went overseas to build large civil works projects in hydro and water management. However, these companies either no longer exist or have been absorbed in to other companies. However, several companies are currently very interested in moving into construction outside of the U.S. Those companies who have expressed direct interest in Ilopango-Aguacayo Project or Central America in general for EPC or specialty construction include:

- TetraTech
- NAES
- Hayward Baker
- Harrison-Western
- URS Corporation – Washington Corporation
- Robbins – supplies many of the tunnel boring machines around the world
- WorleyParsons

The civil construction business has somewhat high entry fees. It is very expensive for a company to provide a bid for a fixed price EPC contract, particularly one with complex features such as tunnels and below water level intakes. It is difficult for companies to justify the expenditure of a bid, without prior experience in the country or a feel for local costs. Since the U.S. companies have not been involved in the small hydro projects in Central America recently, companies from other countries, such as Spain, Italy and Brazil are better situated to compete.

A possible solution for companies to better enter the market is to form a team with members who have a presence in the country and work together in an EPC type of format. However, the team must feel that it has a reasonable chance to have some success before making the time and budget commitment to bid a project. Relationship building is necessary before such market entry typically takes place.

The amount of civil construction on the project is on the order of $25-30 million. If a U.S. contractor was awarded the contract, the U.S. content would be some sub-set of the amount, as much of the work would go in to local labor, fuel and local materials of cement and concrete components, as well as local mobilization costs. The U.S. content might be about 20-30% of the total amount. However the tunnel construction could raise this percentage to perhaps 40-50% if a TBM was used and skilled individuals were used to oversee the shift crews and perform maintenance and repair.

Foreign competition has been discussed in the prior paragraphs. In summary, the foreign competition for the major electrical/mechanical equipment supply is from the non-U.S. offices and factories of the major suppliers. Construction services competition comes primarily from Spain, Brazil, Italy and possibly Colombia. These companies are not necessarily present in El Salvador due to the limited amount of hydro construction there, but are in nearby countries. The proximity could provide an advantage over U.S. companies wanting to enter the market.

The services sector competition is again from Brazilian or European companies. However, many U.S. companies have a current competitive presence in Central America and El Salvador. Also, it appears that services companies are more willing to venture in to Central America than construction companies.

6 DEVELOPMENT IMPACTS

The Ilopango-Aguacayo project would have several positive developmental impacts within El Salvador. The project would be the largest of the "small hydro" private projects to go forward in the country.

Currently, the National Energy Council is working on a set of regulations for promoting renewable energy projects. There are only a few on-going and it is likely that the tender for 350 MW of capacity will be filled by a natural gas or coal option. The country will want to balance with additional renewable capacity and may institute a Renewable Portfolio Standard to allow space for projects such as IAP. The IAP will be well suited to go forward as a domestic and long term supply of energy. It also can be a valuable source of dispatchable capacity, if the peaking aspects of the project can be realized.

The construction of the project would have some benefits to go along with disturbance at the shore area of Lake Ilopango. The construction of the intake in the region would provide better roads and access to the area and possibly develop it further for tourism. At the present, tourism is only present in the form of second homes and a few other facilities on the opposite side of the lake. Since the project area is only about 45 minutes from San Salvador, it is reasonable to expect that with better access to the lake, more tourism may develop.

There is a potential major social benefit to the project. As noted, there have been two incidents in the past decade which blocked the outlet of the lake. An emergency situation developed which required action on the part of the government to remove the blockage and allow the lake to drain through the Desague River. During these times the lake level rose, causing flooding and disruption around the lake shoreline and also developing a potentially hazardous situation at the blockage. While not predictable, it is quite foreseeable that either an earthquake or extreme rainfall incident will occur again to block or partly block the Desague River. The IAP would allow for a drainage tap that would not be blocked to keep flow draining from the lake. The positive value of this outlet should be evaluated during the feasibility study. These benefits are hard to monetize but are clearly a mitigation of a known flood risk.

The construction of the project will also provide for jobs in the area of the project. This particular area has not had substantial investment in recent years, and the works should add some boost to local employment during the period of construction. There should be opportunity for both application of skilled labor, plus the development of skills during the 30 month construction schedule for the project.

While power plants often provide for a number of jobs, hydroelectric projects of this nature generally do not. The plant likely will only need two skilled full time operators, plus perhaps 4-6 labor/maintenance personnel and security personnel. In addition, there would be some management and administrative people, but only on a limited or part time basis.

The electrical sector laws of El Salvador are well developed after the reforms in the sector of the last 10-15 years. The rules are well established and there have been several projects that have been developed. The market rules are mature, and although they may continue to evolve, are likely to remain on the course which has been set.

One area where local expertise may be advanced is in the environmental regulatory environment. It is understood that the USEPA is currently working with the MARN (Ministry of Environment and Natural Resources) to enhance the skills of the MARN staff in environmental assessment and mitigation. This project would be a timely concession application for the MARN to assess and evaluate as a medium sized project, using the current training. A positive example of the cooperation between MARN and the sponsor of IAP may encourage further renewable energy development in El Salvador. While there are not a large numbers of other hydroelectric projects proposed in El Salvador, there are several in the concession and study process and others may be identified if there are success stories.

The project will import some technology, but much of it will be typical of the hydroelectric industry and not any particular new developments. Except for the controls and automation aspects, which continue to evolve, most hydroelectric technology is well proven in any number of applications.

Ultimately, the project will provide a long term stable source of domestic electric energy to the mix in El Salvador, which can provide competitive priced electrical power for a very long project life, perhaps up to 100 years or more with proper construction and replacement of equipment.

7 IMPACT ON THE ENVIRONMENT

The Ilopango-Aguacayo Project will be a major construction project and have both construction and operations impacts on the existing environment. At this time, there has not been a substantial environmental study, which is a major need of the feasibility work.

Environmental review of the project will be necessary both for securing the SIGET Concession, and the financing of the project. The participation of CABEI, BID or BMI will all ensure that the project will have a completed environmental evaluation which is usually to the standard of the World Bank.

The project will have impacts during construction on the region including:

- Improvement of access roads and access to the area;
- Substantially increased movement of trucks and equipment on local roads;
- Opportunities for employment in the project construction, perhaps up to 150-200 during the peak;
- Influx of workers and skilled labor from outside areas to the project;
- Noise and dust/emissions in the air;
- Spoil from tunnel construction (possibly for road building) and excavation for penstock and other works;
- Opening of previously remote areas of Lake Ilopango;
- Establishment of a 12 km transmission line corridor;
- Potential for spills of fluids and increased possibility of erosion during construction.

During operations the project will have long term potential impacts including:

- Decreased flow in the Desague River as flow is released from the Lake Ilopango through the generating project;
- Some lake level change, although it may be limited to 10 cm (4 inches), in the dry season;
- Additional flows in the Aguacayo River on a regular basis including a possible peaking flow. The peaking flow could go from 1 m^3/s to 9 m^3/s and back during peak/off peak times in the dry season;
- Disturbance of the powerhouse area and penstock route during construction;
- Supply of 56 GWh on the average, annually of clean energy supply;
- Potential mitigation of flooding and hazardous situation in the case of Desague River;
- Long term domestic energy supply at a competitive price for consumers.

The project baseline environmental conditions need to be established so that the project impacts can be substantially evaluated and mitigated. Most of the construction impacts are those that can be mitigated with proper construction planning and practices. Those of the long term may require fundamental changes to the project proposed. Such changes could include:

- Modification of the proposed operations of the project to keep lake level change at or below some typical lake level variation. Such change could be an increase or decrease in the proposed elevation change of up to 10 cm in a day, insufficient hydrology data to confirm this differential change notwithstanding. The naturally occurring lake level changes and subsequent impacts need to be evaluated to project impacts can be understood.
- Construction of a re-regulating structure in the powerhouse area of the Aguacayo River to dampen flow changes may be required. The impacts both on river biota and local social activity must be fully evaluated and mitigated as necessary. Sudden and substantial changes in the Aguacayo River could be dangerous for people using the river for water supply, children in the water or other typical domestic uses.

Another important issue is the impact of the changes in flow and water quality by releasing lake flow through the Aguacayo to the Jiboa River instead of the Desague River. The flow regime change will be permanent and could have some positive benefits to go with negative impacts. The impacts could be both on local water supply and water quality, along with the river biota.

At this time, the cause of the impacts listed is known. However, the actual impact is not known because there is limited baseline information available. A major part of the feasibility study will be to document the baseline conditions. Afterward flow changes and the existence of facilities can be evaluated for impact and mitigation.

8 IMPACT ON U.S. LABOR

The participation of the U.S. hydropower industry in the project would not have any negative impact on U.S. Labor. The development and construction of a hydroelectric project in El Salvador would not give any advantage to the local labor market, nor provide any particular technology that could be duplicated and manufactured at lower cost outside the U.S. El Salvador would have a source of competitive cost electrical supply, but a small one relative to the entire electrical system. Electrical costs are high in El Salvador, so the IAP project will only help to stabilize these costs.

If U.S. companies are successful in providing either services, equipment or construction, a number of temporary jobs would be created in the U.S. or for ex-pat U.S. workers. The number would depend on the success of firms on securing project contracts. There are no permanent jobs created in the U.S. by the project, as once construction is completed there would be minimal input during the operations period. There could be some follow up services needed for maintenance and replacement of project components over the long term. The project would be expected to operate at least 30 years before any major replacements were necessary.

9 QUALIFICATIONS OF SPONSORS FEASIBILITY STUDY TEAM

The Feasibility Study will require a considerable expanse of expertise. Some will likely be domestic to El Salvador. The domestic (El Salvador) work would most likely include the environmental expertise necessary for baseline studies, as well as other work such as sub-surface exploration equipment and field work.

In the event that USTDA funds the feasibility study for Ilopango-Aguacayo Project, the study should be offered for tender by qualified groups.

The Feasibility Study Contractor should have the following areas of expertise and experience:

General – The Contractor should have expertise in the conceptual and detailed planning and final design of hydroelectric projects. Such engineering and technical expertise should include:

- Development and analysis of hydrologic records;
- Collection of topographic information;
- Geologic mapping and design of sub-surface exploratory programs for development of water conveyance tunnels and buried penstock;
- Ability to develop model of balance of lake level, generation flow and generation output of hydroelectric projects;
- Layout and design of water conveyance and hydroelectric projects;
- Cost estimate and scheduling expertise;
- Valuation of power and financial modeling analysis;
- Understanding of project development requirements.

In addition to the technical expertise, specific environmental and social expertise for establishing the baseline condition and impact assessment, including:

- Ability to design, conduct and utilize relevant field assessments to develop a baseline for the project including biota and social setting;
- Familiarity with lake and riverine aquatic impacts due to changing water levels;
- Ability to assess impacts of changed river flow including establishment of instream flow requirements;
- Understanding of potential social and commercial impacts of large civil construction projects;
- Understanding of water quality impacts of moving water from lake receiving river;
- Experience in developing mitigation program for environmental and social impacts of hydroelectric projects in rural areas.

10 TERMS OF REFERENCE

10.1 PURPOSE AND OBJECTIVES

The purpose of the Feasibility Study is to refine the Ilopango-Aguacayo Project (IAP) proposal for gaining a concession from the SIGET, environmental approval from MARN, financing construction of the project and defining the project for final design.

The objectives of the study include:

- Collection of key field information for topographical, geologic (including sub-surface) and environmental aspects;
- Confirmation of or modification of the project as defined in the Pre-feasibility study to arrive at a final formulation, taking in to account any technical or environmental limitations;
- Establishing the environmental baseline conditions and modifying the project to avoid negative impacts or developing a mitigation plan for any remaining construction and operations impacts;
- Finalizing the project plans and operational details;
- Develop a detailed cost estimate and schedule for project implementation;
- Analyze the project for financial feasibility, taking in to account the long term market conditions for project power;
- Prepare feasibility level drawings to allow for proper cost estimates and design criteria/bid documents in the next development phase.

The Project Feasibility Study is divided in to two phases. The first phase includes the detailed hydrology evaluation, surface mapping and geology/seismology evaluation, environmental data gathering and re-formulation of the project. The second phase provides for more detailed studies in the environmental, geotechnical and optimization studies to have the final project defined in accordance with project objectives.

10.2 PROPOSED TERMS OF REFERENCE – TECHNICAL AND ENVIRONMENTAL ANALYSIS

[Refer to Annex 5 of the RFP.]

10.3 SCHEDULE

The schedule proposed for the project is for eleven months. This time allows for the two stage formulation and design and allows for the relatively expensive sub-surface investigation budget to be used in the most effective manner, after an initial review and project concept is confirmed with topographical, hydrological geotechnical and environmental analysis has started. The second phase of the study allows for the chronological time for focused environmental and

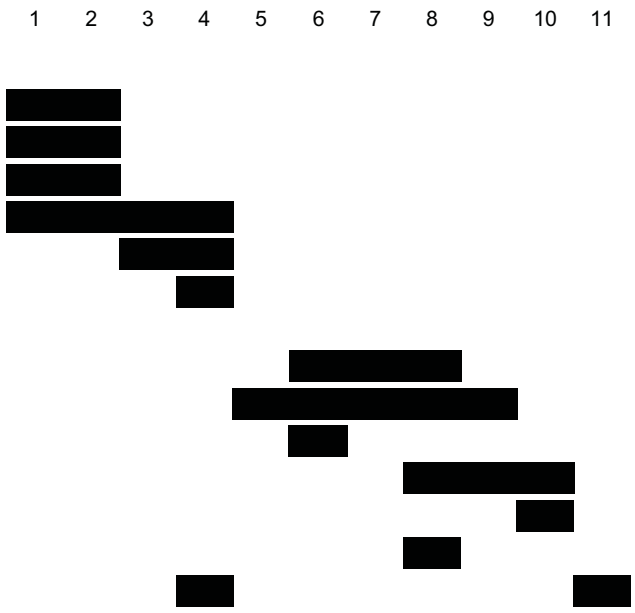
social field studies along with the geotechnical exploration and the final feasibility design of the project.

Exhibit 10-1
Project Schedule

Ilopango-Aguacayo Hydropower Project

Feasibility Study Schedule

Task No.	Task Name	Duration Months
PHASE 1	**Project Information and Definition**	
1	Initial Topography	2
2	Geology, Geotech and Seismicity	2
3	Hydrology	2
4	Environmental Baseline Studies	4
5	Project Formulation and Assessment	2
	Phase 1 Interim Report	
PHASE 2	**Project Confirmation, Mitigation and Design**	
6	Geotechnical Field Studies	3
7	Developmental, Env. Impact & Mitigation	6
8	Final Topographical Surveys	1
9	Final Project Optimization and Design	4
10	Economic and Financial Analysis	1
11	Regulatory Issues and Implementation Plan	1
12	Reporting	1



10.4 PROPOSED STUDY BUDGET

The budget is based on the Terms of Reference Tasks, with work classifications for the required personnel. The prime contractor pricing is based on rates for U.S. companies with fully loaded overheads. The Host Country labor costs are similarly estimated based on the labor costs in El Salvador for similar personnel. The estimate is reasonable for a project of this scope at the feasibility stage.

The total estimate for the Study is $742,380.

11 JUSTIFICATION

The Ilopango-Aguacayo Project is in the early development stages of implementation. If completed, the project will add about 17 MW and 56 GWh of renewable power and energy to the energy mix of El Salvador. The country is currently paying a high price on its energy market for power. Needs are illustrated by the current bid process for the three major Distribution Companies to purchase 350 MW of new capacity. Some of the capacity will displace significant use of Bunker C or diesel fired capacity. The project may be eligible for this process, but may not be far along enough in development to provide a bid that meets the tender requirements.

The National Energy Council (CNE) is working on a policy for renewable projects, which may result in a Renewable Portfolio Standard. If this approach is implemented, the IAP will be in a very competitive position for fitting under the standard in a competitive manner. The project is one of the better potential sites that exist in El Salvador. Even failing an RPS slot, the project would likely be met with favor by one of the Distribution Companies for output purchase under a Power Purchase Agreement. Therefore, the project appears to be in a good position, from a market perspective.

There also appear to be numerous sources interested in providing debt financing to the project. At this point in time, there appears to be more funds available for debt provision than there are projects that merit the financing. The project does, however need to attract equity financing as the sponsor does not currently have the significant amount of funds to provide for the up front development capital or the 30% equity for the total project cost of implementation. The sponsor is in negotiations with a number of possible equity providers. However, many of the parties would not be interested until after a feasibility study proves the project worthy.

The sponsor has worked with and for U.S. firms in the past and is in discussions with U.S. (and other) sources of equity. It is likely that the feasibility work contractor would stay with the project through development and construction, which could be on the order of $2,000,000 or more. There are U.S. construction companies interested in starting operations in Central America, although they have not at this point been very active in the hydro industry. The IAP is large enough to possibly interest U.S. companies. As there is a tunnel involved, the U.S. industry may find it attractive to apply U.S. technology. The chances of a U.S. contractor participating in the project are higher with the participation of a U.S. company as lead engineer or a U.S. investor providing equity. The value of outside El Salvador activity would range from 20-50% of the project construction costs or about $6-15 million of the total range of construction of $25-30 million.

The equipment supply for the project may be as much as $10 million. There is one highly competent and competitive U.S. company that provides such equipment. Other international

companies that have U.S. subsidiaries have a history of answering bids for the equipment package from non-U.S. subsidiaries.

The project is in need of a Feasibility Study before it can go forward. The project likely is attractive, unless there is some unexpected limitation on using Lake Ilopango water.

It is also important to mention that the project may have a substantial social benefit of avoiding lake flooding in the future in the likely instance of another blockage of the outlet river.

12 RECOMMENDATIONS

The project is recommended for consideration for funding by USTDA. The project does not have any conflicts with U.S. Labor and if the U.S. companies get involved, there is more opportunity for U.S. investors and construction contractors to be involved.

It is unlikely that market-oriented reforms are going to be caused by or needed for the project, nor are any expected to be necessary. The power market and regulatory system are well ordered and operative. There is some feeling by the industry that the environmental regulatory body, MARN, is not responding to project in a timely or reasonable manner. Evidence of such an opinion is limited. However, there is an on-going program of USAID to provide training to MARN for evaluation of renewable projects, which should be timely for IAP.

The project will provide some work and training for local workers. There is not likely to be long term employment gains directly relatable to IAP, as operations of projects of this nature do not employ many people. However, the learning of skills involved in tunneling and other heavy civil works could lead to more useful development in the country.

The project will provide a long term, valuable resource to the energy supply mix in El Salvador and possibly provide other benefits in the provision of an alternative source of outflow for the problematic Lake Ilopango landslides.

13 OTHER PROJECTS

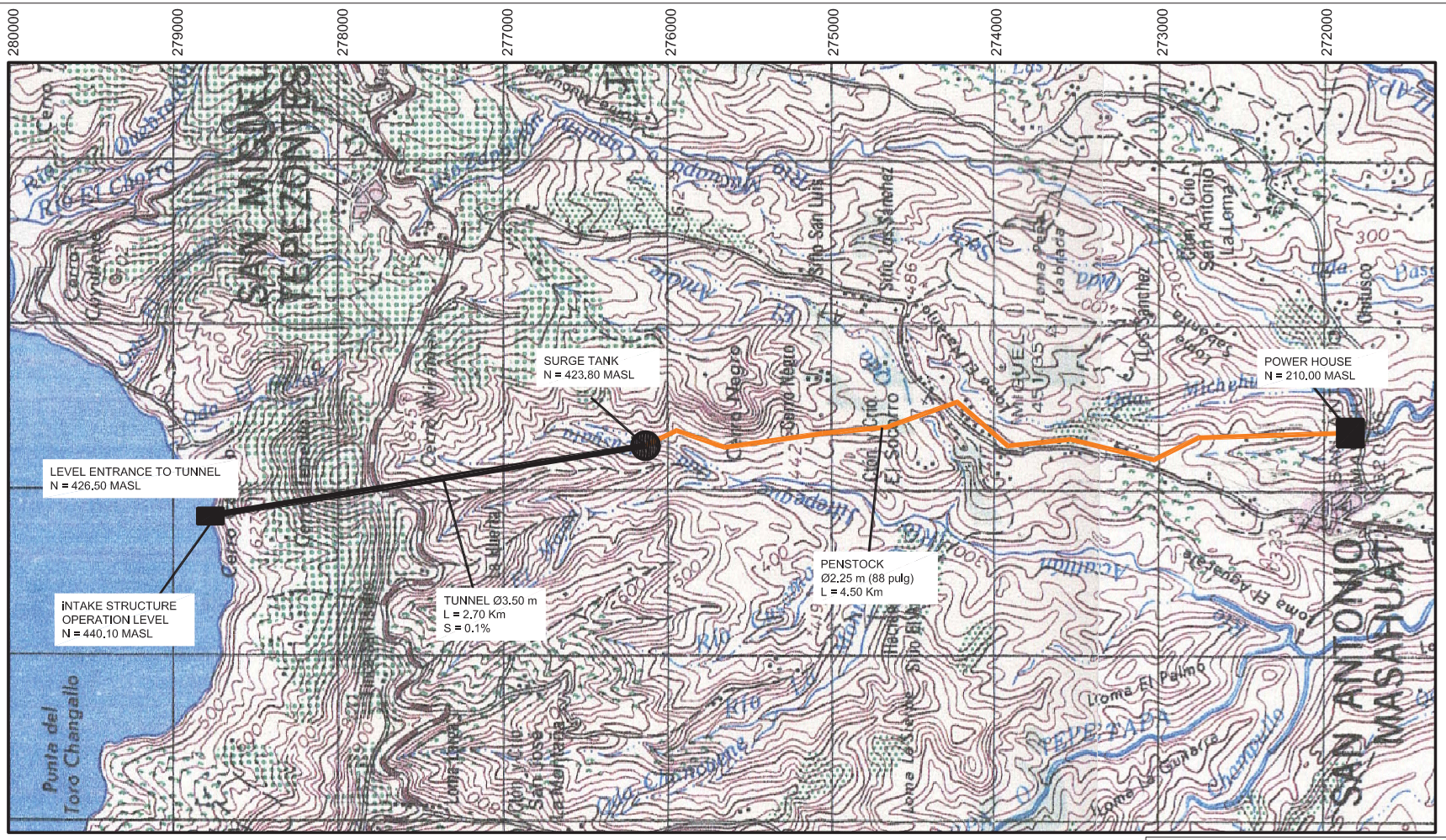
The renewable energy opportunities in El Salvador are more limited than some other Central American countries. The most developed technologies that are contributing to the current energy mix are geotechnical and hydro power. There is a rather limited wind resource in the country, as expressed by policy makers and other energy sector representatives.

The hydroelectric resources in El Salvador are smaller than neighboring countries. There is quite a bit of activity in the hydroelectric sector in Guatemala, Panama and Costa Rica. There are also many projects being proposed in Honduras.

A key development for future sector work in El Salvador is the upcoming policy for renewable energy. If, as anticipated, some structured RPS is established, there will be room for projects and they will be easier to attract development capital.

APPENDIX A

PROJECT DRAWINGS



GENERAL DISTRIBUCION OF CIVIL WORKS

Scale 1:25,000

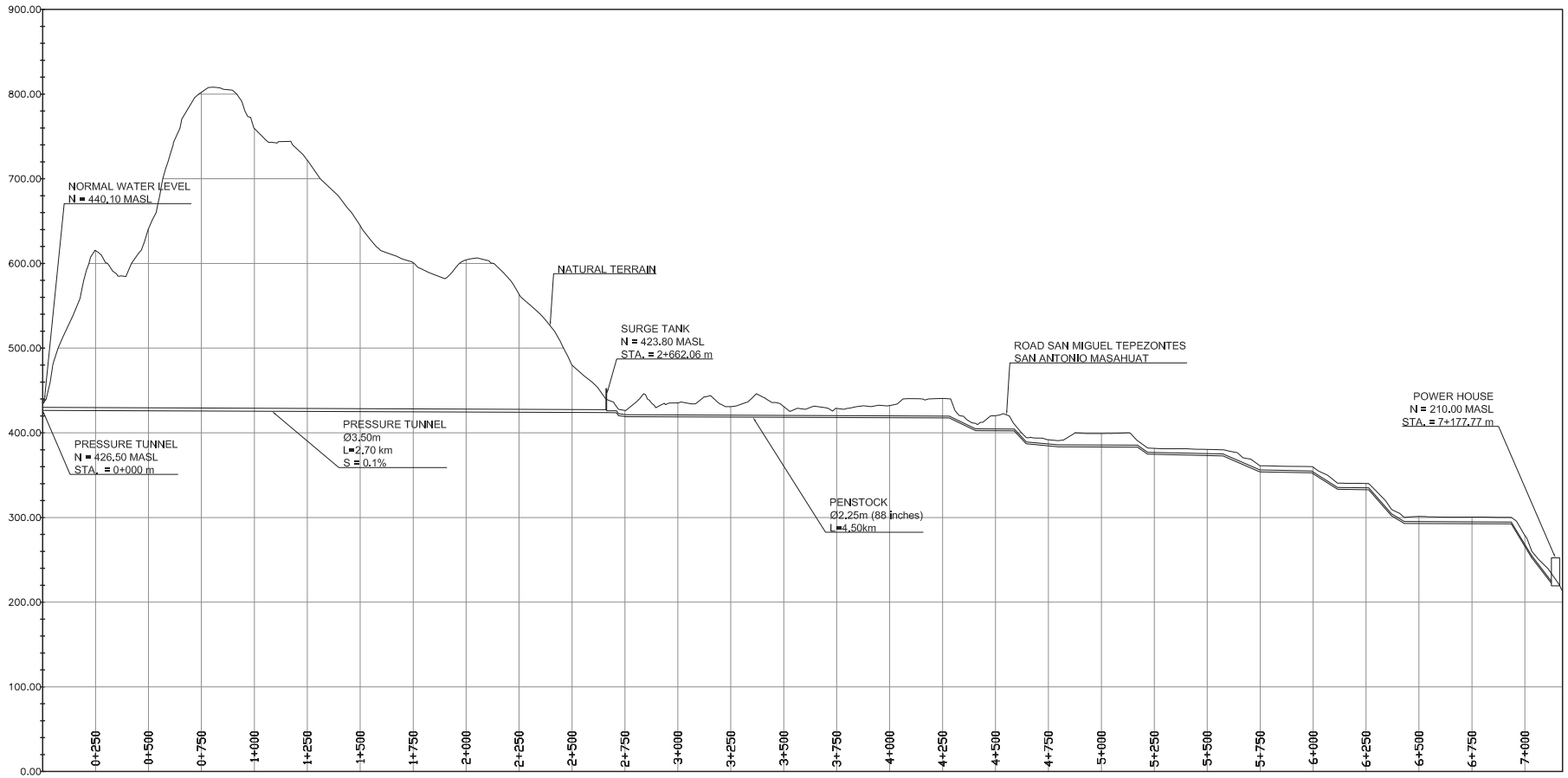
PRE–FEASIBILITY STUDY			ILOPANGO–AGUACAYO HYDROELECTRIC PROJECT
CONTROL	RESPONSABLE	FECHA	Preparado por:
DIBUJO	ING. WEGC	01/02/10	INGENDEHSA S.A de C.V.
REV. 1	---	---	
REV. 2	---	---	
REV. 3	---	---	
REV. FINAL	---	---	

Plano / Contenido: Planimetría Proyecto Ilopango–Aguacayo

Escala: INDICADAS

Fecha: 01/02/10

Ruta: \\pentium4\Proyectos Hidroeléctricos\El Salvador\Ilopango\Prefactibilidad\Trazo proyecto



PROFILE OF ILOPANGO-AGUACAYO PROJECT CIVIL WORKS

Horizontal Scale 1:20,000

Vertical Scale 1:5,000

PRE–FEASIBILITY STUDY			ILOPANGO–AGUACAYO HYDROELECTRIC PROJECT
CONTROL	RESPONSABLE	FECHA	Preparado por:
DIBUJO	ING. WEGC	01/02/10	INGENDEHSA S.A de C.V.
REV. 1	---	---	
REV. 2	---	---	
REV. 3	---	---	
REV. FINAL	---	---	

Plano / Contenido: P–02–00 (Perfil del Proyecto Ilopango–Aguacayo)

Escala: INDICADAS

Fecha: 01/02/10

Ruta: \\pentium4\Proyectos Hidroeléctricos\El Salvador\Ilopango\Prefactibilidad\Trazo proyecto

APPENDIX B

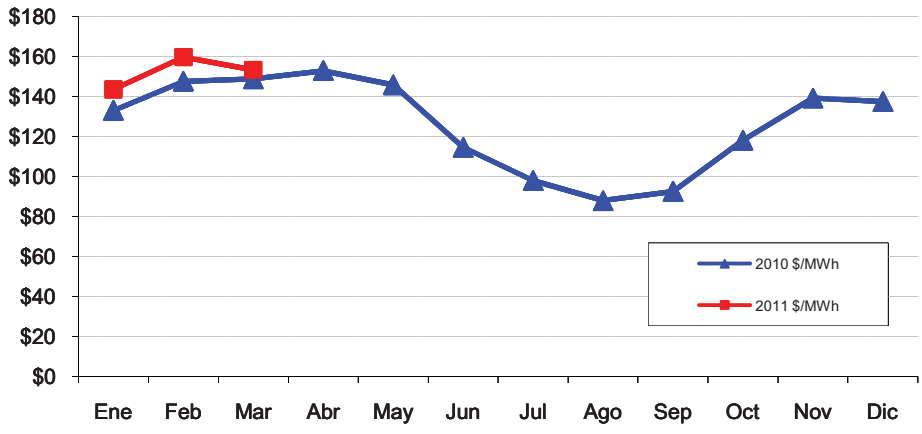
MONTHLY ENERGY PRICES

Evolución de los precios en el MRS

Mes	Promedio		Variaciones %			
	2010 $/MWh	2011 $/MWh	Mes	Anual	Acum.	Prom. anual
Ene	133.00	143.53	4.46	7.91	8.35	127.20
Feb	147.61	159.67	11.25	8.17	20.54	128.20
Mar	148.75	153.27	-4.01	3.04	15.70	128.58
Abr	152.90					
May	145.84					
Jun	114.59					
Jul	97.96					
Ago	87.91					
Sep	92.54					
Oct	118.14					
Nov	139.17					
Dic	137.41					

Mensual: Relación mes inmediato anterior
Anual: Relación igual mes año anterior
Acumulada: Relación respecto a diciembre año anterior
Promedio anual: Relación últimos doce meses

Precio Máximo horario: $ 194.98 / MWh
Precio Mínimo horario: $ 122.21 / MWh



A N N E X 3

USTDA NATIONALITY REQUIREMENTS

U.S. TRADE AND DEVELOPMENT AGENCY
Arlington, VA 22209-2131

NATIONALITY, SOURCE, AND ORIGIN REQUIREMENTS

The purpose of USTDA's nationality, source, and origin requirements is to assure the maximum practicable participation of American contractors, technology, equipment and materials in the prefeasibility, feasibility, and implementation stages of a project.

USTDA STANDARD RULE (GRANT AGREEMENT STANDARD LANGUAGE):

Except as USTDA may otherwise agree, each of the following provisions shall apply to the delivery of goods and services funded by USTDA under this Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from host country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for implementation of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and (e) goods and services incidental to Study support (e.g., local lodging, food, and transportation) in host country are not subject to the above restrictions. USTDA will make available further details concerning these standards of eligibility upon request.

NATIONALITY:

1) Rule

Except as USTDA may otherwise agree, the Contractor for USTDA funded activities must be either a U.S. firm or a U.S. individual. Prime contractors may utilize U.S.

subcontractors without limitation, but the use of host country subcontractors is limited to 20% of the USTDA grant amount.

2) Application

Accordingly, only a U.S. firm or U.S. individual may submit proposals on USTDA funded activities. Although those proposals may include subcontracting arrangements with host country firms or individuals for up to 20% of the USTDA grant amount, they may not include subcontracts with third country entities. U.S. firms submitting proposals must ensure that the professional services funded by the USTDA grant, to the extent not subcontracted to host country entities, are supplied by employees of the firm or employees of U.S. subcontractor firms who are U.S. individuals.

Interested U.S. firms and consultants who submit proposals must meet USTDA nationality requirements as of the due date for the submission of proposals and, if selected, must continue to meet such requirements throughout the duration of the USTDA-financed activity. These nationality provisions apply to whatever portion of the Terms of Reference is funded with the USTDA grant.

3) Definitions

A "U.S. individual" is (a) a U.S. citizen, or (b) a non-U.S. citizen lawfully admitted for permanent residence in the U.S. (a green card holder).

A "U.S. firm" is a privately owned firm which is incorporated in the U.S., with its principal place of business in the U.S., and which is either (a) more than 50% owned by U.S. individuals, or (b) has been incorporated in the U.S. for more than three (3) years prior to the issuance date of the request for proposals; has performed similar services in the U.S. for that three (3) year period; employs U.S. citizens in more than half of its permanent full-time positions in the U.S.; and has the existing capability in the U.S. to perform the work in question.

A partnership, organized in the U.S. with its principal place of business in the U.S., may also qualify as a “U.S. firm” as would a joint venture organized or incorporated in the United States consisting entirely of U.S. firms and/or U.S. individuals.

A nonprofit organization, such as an educational institution, foundation, or association may also qualify as a “U.S. firm” if it is incorporated in the United States and managed by a governing body, a majority of whose members are U.S. individuals.

SOURCE AND ORIGIN:

1) Rule

In addition to the nationality requirement stated above, any goods (e.g., equipment and materials) and services related to their shipment (e.g., international transportation and insurance) funded under the USTDA Grant Agreement must have their source and origin in the United States, unless USTDA otherwise agrees. However, necessary purchases of goods and project support services which are unavailable from a U.S. source (e.g., local food, housing and transportation) are eligible without specific USTDA approval.

2) Application

Accordingly, the prime contractor must be able to demonstrate that all goods and services purchased in the host country to carry out the Terms of Reference for a USTDA Grant Agreement that were not of U.S. source and origin were unavailable in the United States.

3) Definitions

“Source” means the country from which shipment is made.

"Origin” means the place of production, through manufacturing, assembly or otherwise.

Questions regarding these nationality, source and origin requirements may be addressed to the USTDA Office of General Counsel.

A N N E X 4

USTDA GRANT AGREEMENT, INCLUDING MANDATORY CONTRACT CLAUSES

GRANT AGREEMENT

This Grant Agreement is entered into between the Government of the United States of America, acting through the U.S. Trade and Development Agency ("USTDA"), and INGENDEHSA, S.A. de C.V. ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Grant Agreement US$742,380 ("USTDA Grant") to fund the cost of goods and services required for a feasibility study ("Study") on the proposed Ilopango-Aguacayo Hydropower project ("Project") in El Salvador ("Host Country").

1. USTDA Funding

The funding to be provided under this Grant Agreement shall be used to fund the costs of a contract between the Grantee and the U.S. firm selected by the Grantee ("Contractor") under which the Contractor will perform the Study ("Contract"). Payment to the Contractor will be made directly by USTDA on behalf of the Grantee with the USTDA Grant funds provided under this Grant Agreement.

2. Terms of Reference

The Terms of Reference for the Study ("Terms of Reference") are attached as Annex I and are hereby made a part of this Grant Agreement. The Study will examine the technical, financial, environmental, and other critical aspects of the proposed Project. The Terms of Reference for the Study shall also be included in the Contract.

3. Standards of Conduct

USTDA and the Grantee recognize the existence of standards of conduct for public officials and commercial entities in their respective countries. Therefore, USTDA, the Grantee, and the Contractor shall not directly or indirectly provide, offer or promise to provide money or anything of value to any public official in violation of any United States or Host Country laws relating to corruption or bribery.

4. Grantee Responsibilities

The Grantee shall undertake its best efforts to provide reasonable support for the Contractor, such as local transportation, office space, and secretarial support.

5. Contract Matters and USTDA's Rights as Financier

(A) Grantee Competitive Selection Procedures

Selection of the U.S. Contractor shall be carried out by the Grantee according to its established procedures for the competitive selection of contractors with advance notice of the procurement published online through *Federal Business Opportunities (www.fedbizopps.gov)*. Upon request, the Grantee will submit these contracting procedures and related documents to USTDA for information and/or approval.

(B) USTDA's Right to Approve Contractor Selection

The Grantee shall notify USTDA at the address of record set forth in Article 16 below upon selection of the Contractor to perform the Study. USTDA then shall notify the Grantee whether or not USTDA approves the Grantee's Contractor selection. Upon USTDA approval of the Grantee's Contractor selection, the Grantee shall notify in writing the U.S. firms that submitted unsuccessful proposals to perform the Study that they were not selected. The Grantee and the Contractor then shall enter into a contract for performance of the Study.

(C) USTDA's Right to Approve Contract Between Grantee and Contractor

(1) Contract

The Grantee and the Contractor shall enter into a contract for performance of the Study. The Grantee (or the Contractor on the Grantee's behalf) shall transmit to USTDA, at the address set forth in Article 16 below, a photocopy of an English language version of the signed contract or a final negotiated draft version of the contract. USTDA then shall notify the Grantee and the Contractor whether or not USTDA approves the contract.

(2) Amendments and Assignments

The Grantee or the Contractor may submit any proposed amendment to the contract, including any proposed amendment to any annex thereto, or any proposed assignment of the contract, to USTDA at the address set forth in Article 16 below. USTDA then shall notify the Grantee and the Contractor whether or not USTDA approves the proposed amendment or assignment.

(D) USTDA Not a Party to the Contract

It is understood by the parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of the contract and any amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract funded under the

Grant Agreement. The parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval rights shall be made as a financier in the course of funding the Study and shall not be construed as making USTDA a party to the contract. The parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the parties to the contract or any subcontract, jointly or separately, without thereby incurring any responsibility or liability to such parties. Any approval or failure to approve by USTDA shall not bar the Grantee or USTDA from asserting any right they might have against the Contractor, or relieve the Contractor of any liability which the Contractor might otherwise have to the Grantee or USTDA.

(E) Grant Agreement Controlling

Regardless of USTDA approval, the rights and obligations of any party to the contract or any subcontract thereunder must be consistent with this Grant Agreement. In the event of any inconsistency between the Grant Agreement and the contract or any subcontract funded by the Grant Agreement, the Grant Agreement shall control.

6. Disbursement Procedures

(A) USTDA Approval of Contract Required

USTDA will make disbursements of Grant funds directly to the Contractor only after USTDA approves the Grantee's contract with the Contractor.

(B) Contractor Invoice Requirements

The Grantee should request disbursement of funds by USTDA to the Contractor for performance of the Study by submitting invoices in accordance with the procedures set forth in the USTDA Mandatory Clauses in Annex II of this Grant Agreement.

7. Effective Date

The effective date of this Grant Agreement ("Effective Date") shall be the date of signature by both parties or, if the parties sign on different dates, the date of the last signature.

8. Study Schedule

(A) Study Completion Date

The completion date for the Study, which is June 30, 2013, is the date by which the parties estimate that the Study will have been completed.

(B) Time Limitation on Disbursement of USTDA Grant Funds

Except as USTDA may otherwise agree, (i) no USTDA funds may be disbursed under this Grant Agreement for goods and services which are provided prior to the Effective Date of the Grant Agreement; and (ii) no USTDA funds may be disbursed more than four (4) years after the Effective Date of the Grant Agreement.

9. USTDA Mandatory Contract Clauses

All contracts funded under this Grant Agreement shall include the USTDA Mandatory Contract Clauses set forth in Annex II to this Grant Agreement. All subcontracts funded or partially funded with USTDA Grant funds shall include the USTDA Mandatory Contract Clauses, except for clauses B(1), G, H, I, and J.

10. Use of U.S. Carriers

(A) Air

Transportation by air of persons or property funded under this Grant Agreement shall be on U.S. flag carriers in accordance with the Fly America Act, 49 U.S.C. 40118, to the extent service by such carriers is available, as provided under applicable U.S. Government regulations.

(B) Marine

Transportation by sea of property funded under this Grant Agreement shall be on U.S. carriers in accordance with U.S. cargo preference law.

11. Nationality, Source, and Origin

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and professional services funded by USTDA under this Grant Agreement:

(a) The Contractor must be a U.S. firm;

(b) The Contractor may use U.S. subcontractors without limitation;

(c) Employees of U.S. Contractor or U.S. subcontractor firms shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the United States, except as provided pursuant to subpart (d) below;

(d) Up to twenty percent (20%) of the USTDA Grant amount may be used to pay for services performed by (i) Host Country subcontractors, and/or (ii) Host Country nationals who are employees of the Contractor;

(e) A Host Country subcontractor may only be used for specific services from the Terms of Reference identified in the subcontract;

(f) Subcontractors from countries other than the United States or Host Country may not be used;

(g) Goods purchased for performance of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source, and origin in the United States; and

(h) Goods and services incidental to Study support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions.

USTDA will make available further details concerning these provisions upon request.

12. Taxes

USTDA funds provided under this Grant Agreement shall not be used to pay any taxes, tariffs, duties, fees, or other levies imposed under laws in effect in Host Country, except for taxes of a de minimis nature imposed on local lodging, food, transportation, or airport arrivals or departures. Neither the Grantee nor the Contractor will seek reimbursement from USTDA for taxes, tariffs, duties, fees. or other levies, except for taxes of a de minimis nature referenced above.

13. USTDA Project Evaluation

The parties will cooperate to assure that the purposes of the Grant Agreement are accomplished. For five (5) years following receipt by USTDA of the Final Report, the Grantee agrees to respond to any reasonable inquiries from USTDA about the status of the Project. Inquiries will include, but not be limited to, whether the Final Report recommendations have been or will be used to implement the Project, anticipated Project implementation timeline, and likely source of financing. In addition, the Grantee agrees to notify USTDA any time the Grantee selects a new primary contact person for this Project during the five-year period referenced above.

14. Recordkeeping and Audit

The Grantee agrees to maintain books, records, and other documents relating to the Study and this Grant Agreement adequate to demonstrate implementation of its responsibilities under this Grant Agreement, including the selection of contractors, receipt and approval of contract deliverables, and approval or disapproval of contractor invoices for payment by USTDA. Such books, records, and other documents shall be separately maintained for three (3) years after the date of the final disbursement by USTDA. The Grantee shall afford USTDA or its authorized representatives the opportunity at reasonable times to review books, records, and other documents relating to the Study and the Grant Agreement.

15. Representation of Parties

For all purposes relevant to this Grant Agreement, the Government of the United States of America will be represented by the U.S. Ambassador to the Host Country or USTDA and the Grantee will be represented by its President. The parties hereto may, by written notice, designate additional representatives for all purposes under this Grant Agreement.

16. Addresses of Record for Parties

Any notice, request, document, or other communication submitted by either party to the other under the Grant Agreement shall be in writing or through an electronic medium that produces a tangible record of the transmission, such as a facsimile or e-mail message, and will be deemed duly given or sent when delivered to such party at the following:

To: INGENDEHSA, S.A. de C.V.
Av. 1, Pol. E., Casa No. 6
Brisas de San Francisco
Col. Lomas de San Francisco III Etapa
San Salvador
EL SALVADOR

Phone/Fax: +(503) 2273-6243
E-Mail: hermeslandaverde@gmail.com

To: U.S. Trade and Development Agency
1000 Wilson Boulevard, Suite 1600
Arlington, Virginia 22209-3901
USA

Phone: (703) 875-4357
Fax: (703) 875-4009
E-Mail: grantnotices@ustda.gov
LAC@ustda.gov

All such communications shall be in English, unless the parties otherwise agree in writing. In addition, the Grantee shall provide the Commercial or Economic Section of the U.S. Embassy in Host Country with a copy of each communication sent to USTDA.

Any communication relating to this Grant Agreement shall include the following fiscal data:

Appropriation No.: 11 12/13 1001
Activity No.: 2012-51026A
Reservation No.: 2012284
Grant No.: GH201251284

17. Implementation Letters

To assist the Grantee in the implementation of the Study, USTDA may, from time to time, issue implementation letters that will provide additional information about matters covered by this Grant Agreement. USTDA may also issue implementation letters to (i) extend the estimated completion date set forth in Article 8(A) above, or (ii) change the fiscal data set forth in Article 16 above. The parties may also use jointly agreed upon implementation letters to confirm and record their mutual understanding of matters covered by this Grant Agreement.

18. Grant Agreement Amendments

Either party may submit to the other party at any time a proposed amendment to the Grant Agreement. A Grant Agreement amendment shall be effective only if it has been signed by both parties.

19. Termination

Either party may terminate this Grant Agreement by giving the other party written notice thereof. The termination of the Grant Agreement will end any obligations of the parties to provide financial or other resources for the Study, except for payments that may be made pursuant to Clause I of the USTDA Mandatory Contract Clauses set forth in Annex II to this Grant Agreement. This article and Articles 5, 12, 13, 14, and 21 of the Grant Agreement shall survive termination of the Grant Agreement.

20. Non-Waiver of Rights and Remedies

No delay in exercising any right or remedy accruing to either party in connection with the Grant Agreement shall be construed as a waiver of such right or remedy.

21. U.S. Technology and Equipment

By funding this Study, USTDA seeks to promote the project objectives of the Host Country through the use of U.S. technology, goods, and services. In recognition of this purpose, the Grantee agrees that it will allow U.S. suppliers to compete in the procurement of technology, goods, and services needed for Project implementation.

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IN WITNESS WHEREOF, the Government of the United States of America and INGENDEHSA, S.A. de C.V., each acting through its duly authorized representative, have caused this Grant Agreement to be signed in the English language in their names and delivered as of the day and year written below. In the event that this Grant Agreement is signed in more than one language, the English language version shall govern.

For the Government of the United States of America

By: _____

Date: 8/27/12

For INGENDEHSA, S.A. de C.V.

By: _____

Date: 8/27/12

INGENDEHSA S.A. de C.V.

Annex I -- Terms of Reference

Annex II – Mandatory Clauses

Annex I

Terms of Reference

Objective

The objective of the feasibility study ("Study") for the Ilopango-Aguacayo Hydropower Project ("Project") is to conduct detailed technical and environmental assessments to support the development of a 17 MW hydropower facility on Lake Ilopango in El Salvador. The Study will allow INGENDEHSA, S.A. de C.V. ("Grantee") to gather key geological, geotechnical, hydrological, and topographical data, record baseline environmental conditions, complete environmental impact assessment requirements, and develop preliminary designs for the Project.

General Considerations for Deliverables and Documents

The U.S. firm selected by the Grantee to perform the Study ("Contractor") shall undertake a quality control review process, including a technical and editorial review, of all deliverables and documents submitted to the Grantee to ensure readability, accuracy, and consistency. The interim deliverables specified in these Terms of Reference shall serve to keep the Grantee informed about the Contractor's work on the Study and to ensure that the Contractor's findings are acceptable to the Grantee before critical decisions are made on the Study. The Contractor shall submit monthly progress reports to the Grantee.

Activities

Task 1: Collection and Review of Existing Information and Initial Topography

The Contractor shall collect and review existing information on the Project, which will be provided by the Grantee.

The Contractor shall utilize aerial mapping, geographic information systems (GIS), and field methods to conduct the following:

- Revision or confirmation of Lake Ilopango area-capacity curve, particularly in the top 5 meters of the lake;
- Topographical survey of the alignment of the tunnel/penstock alignment with a corridor 100 meters wide;
- Topographical survey of the powerhouse area 100 x 100 meters wide with contour interval of 1 meter;
- Topographical survey of the Aguacayo River in the vicinity of the powerhouse, including sections upstream and downstream that will allow for placement of potential re-regulating structure for peak flow retiming and for establishing the design flood for the powerhouse;
- Map level survey to determine the location of any new access roads or roads that require improvement; and

- Map level survey to determine the location of transmission lines for interconnection.

Interim Deliverable No. 1:
The Contractor shall prepare and submit to the Grantee an interim report summarizing the findings from Task 1.

Task 2: Initial Geological, Geotechnical, and Seismicity Assessments

The Contractor shall conduct the following assessments:

- Field study and specific geology mapping of the proposed intake, powerhouse area, and the water conveyance area, including the type, quality, and characteristics of the materials in these areas. The field studies shall result in mapping usable for project alignment and decisions as to location of tunnels and penstock. The geologic mapping shall provide for an informed decision on the transition point between the tunnel and penstock in Task 5;
- Studies of fault lines and other seismic considerations, and seismic risk for the Project as proposed. The Contractor shall identify areas of avoidance or possible modifications to the Project features or alignment;
- Establish a preliminary disposal plan for tunnel materials;
- Select an area for the final intake placement based on the material conditions at the lake shoreline;
- Evaluate the slope stability in the vicinity of the powerhouse and intake both for construction and long-term periods and identify any design needs possible instability may impose; and
- Definition of the geotechnical field surveys (test bore holes, seismic refraction studies, test pits) to be conducted in Task 6, based on the findings of the mapping and seismic studies. The program of geotechnical field surveys shall be suitable for determining the following:
    - The final amount of tunnel versus penstock for the Project water conveyance. Depending on the risk and cost, it may be appropriate for the Project to utilize a longer high pressure tunnel and limit the buried penstock;
    - Slope stability tests, test pits, or trenches, along with any proposed laboratory testing for soils and rock; and
    - Final alignment for the water conveyance facilities, powerhouse, and intake.

Task 3: Hydrology Assessment

The Contractor shall define a full hydrologic record of the Project, including inflow/outflow of the lake, the hydrology of the Desague River, Jiboa River, and Aguacayo River for final sizing and operations studies and development of the Project features. The Contractor shall develop a mathematical model to balance inflow/outflow of Lake Ilopango and the impacted rivers.

The Contractor shall utilize available information, including a long-term record of lake outflow at the Desague River and extensive meteorological data at sites surrounding the lake.

The Contractor shall conduct the following assessments:

- Correlating the existing hydrological data from the Desague River to meteorological data and using appropriate statistical techniques, extend the river flow data to the period of the meteorological data (the final record should provide an inflow/outflow record for a common period from 1969 to the latest available date);
- Evaluating the rainfall and runoff for the period of record to determine any characteristics of infiltration, subsurface flow, evaporation, or other loss conditions in the lake;
- Determination of the period of record average daily flows and influence on the lake level, due to the estimated rating curve of outflow at the lake outlet; and
- Analyze (using a hydrologic/hydraulic simulation) of the lake inflow/outflow dynamics that can be used on a daily or hourly (peak) basis to determine the following:
    - Impact of minimum flow in the Desague River, as may be defined in the environmental studies;
    - Impact on lake levels, particularly during the dry season with regard to lake level changes related to peaking of the Project or other operation of the Project;
    - Revised flow release regime in to the Aguacayo River; and
    - Calculation of energy generated by the Project in alternative scenarios for comparison of options, as appropriate, using estimated losses in water conveyance.

Task 4: Environmental Baseline Assessment

The Contractor shall develop detailed plans and start data collection for environmental baseline studies in the areas of the impact, including the following areas:

- Identification and documentation of the baseline biota and water quality that could be affected by the Project in the areas of the intake, Desague River, Jiboa River, and Aguacayo River. The data collection shall include potentially affected species and native species that could be sensitive to Project construction and operations;
- Investigate the uses and sensitivity of Lake Ilopango, including historical changes and variation of the lake level for assessment of the impact of lake level changes;
- Design a program and collect social data that takes into account the uses of the lake and affected river stretches, as well as the general area of impact of the water conveyance facilities;
- Confirm that there are no relocations involved in the construction of the Project; and
- Identify any Project conflicts or impacts that place limitations on the placement, construction, or operations of the Project.

The environmental baseline studies shall be designed and executed in accordance with the guidelines and regulations provided by El Salvador's Ministry of the Environment and Natural Resources ("MARN").

Task 5: Initial Project Formulation and Assessment

The Contractor shall complete an initial Project formulation and assessment, based on the findings from Tasks 1-4 and on the opportunities and limitations identified. The Contractor shall take into account the following:

- Any limitations or any environmental or social conditions that will impact or limit Project implementation;
- Evaluate the geological, hydrological, and topographical data to determine where and how (tunnel versus penstock) the water intake, conveyance, and powerhouse facilities will be located;
- Evaluate the need for a surge tank, based on the selection of water conveyance and preliminary identification of turbine equipment to be used;
- Utilize the hydrologic/hydraulic simulation performed in Task 3 to optimize project facilities and re-optimize the installed capacity and energy output of the Project;
- Provide the layout and sections of the intake and powerhouse, as well as the water conveyance alignment;
- Determine the need for any re-regulating structure in the Aguacayo River, and determine the best site;
- Provide a final identification of the alignment of access roads and transmission lines;
- Revise the Project cost estimate and Project schedule on a preliminary basis; and
- Confirm the initial economic viability of the Project.

Interim Deliverable No. 2:
The Contractor shall prepare and submit to the Grantee an interim report detailing the findings from Tasks 1-5, including a detailed chapter on each of the five tasks, the basis for Project final design, and highlighting the updated Project formulation.

Task 6: Geotechnical Field Surveys

The Contractor shall perform the geotechnical field surveys designed in Task 2. The field surveys shall be sufficient to support the eventual tender of the tunnel/penstock construction. The Contractor shall perform the field surveys to a level that allows for the completion of the water conveyance design.

Task 7: Environmental Impact Assessment and Development Impact Assessment

Based on the environmental baseline assessment conducted in Task 4 and the updated Project formulation, the Contractor shall evaluate the environmental and social impacts in detail, as well as the proposed impact mitigation plan. The Contractor shall conduct

additional baseline and key impact field surveys to minimize and mitigate impacts. The environmental impact assessment shall meet the environmental impact assessment requirements of MARN and the World Bank.

For the benefit of those interested in the Project, the Contractor shall assess the development benefits associated with the Project and the methodology for measuring those benefits. The assessment shall include examples of the development benefits that would be expected in the Host Country if the Project is implemented as outlined in the Study. The Contractor shall focus on examples from the categories listed below and shall develop a methodology for assessing these impacts over time. The Contractor shall only list benefits in the categories that are applicable to the Project. The categories to be considered are as follows:

- *Infrastructure*: Provide a statement on the expected infrastructure impacts of the Project, particularly in relation electricity generation, transmission, and distribution.
- *Human Capacity Building*: Assess the number and type of local positions that would be needed to construct and operate the Project.
- *Market-Oriented Reforms*: Provide a description of any regulations, laws, or institutional changes that may be recommended, as well as their anticipated effect.
- *Technology Transfer and Productivity Improvement*: Provide a description of any advanced technologies that would be utilized and any efficiencies that would be gained.
- *Other*: Describe any other developmental benefits derived from the Project, such as improved flood control, environmental, or societal benefits.

Task 8: Final Topographical Surveys

The Contractor shall conduct final topographical work in key areas for the powerhouse construction, any re-regulating structure, the tunnel portal/penstock area, and the intake area. The Contractor shall finalize the topographic map for final Project design. The Contractor shall leave reference marks at the intake location, tunnel portal/transition location, and powerhouse location for future layout and construction.

Task 9: Final Project Optimization and Design

Utilizing the input from the final field surveys and the Project layout, the Contractor shall optimize the Project capacity and complete the Project design, as follows:

- Calculation of the Project design flood for design of the powerhouse setting;
- Final alignment of tunnel and penstock, and preliminary designs of tunnel sections, including expected lining estimates, feasibility-level details of penstock placement, size, and thickness;
- Evaluation of the Project's impacts on possible lake flooding and the projected value of such savings in the instance of flooding;
- Selection of the number of units and type of turbines to be utilized in the Project and solicitation of budgetary quotes from at least two U.S. suppliers (it is

expected that the electrical/mechanical supplier will also provide for equipment for control and protection up to the transformer);

- Identify and provide performance specifications for any other electrical equipment or switchgear for interconnection;
- Identification of auxiliary works for drainage, pumping, or bypass valves;
- Final layout of access roads and transmission corridor and line;
- Functional and definitional drawings in AutoCad for all pertinent Project features, including the powerhouse, discharge, river structures, intake, surge tank, reregulating facilities, and other pertinent Project facilities;
- A single line diagram for the powerhouse, relay and protection systems, and substations necessary for interconnection;
- A load flow study for the transmission line and interconnection point at the grid;
- A plan for handling tunnel and excavation spoil materials for the water conveyance works;
- A final evaluation of the operations of the Project, identifying any regime changes to the lake level caused by the Project;
- A cost estimate of the Project works, based on quantities of materials and equipment necessary. The estimate shall be based on international costs, except where local cost estimates are appropriate;
- A preliminary design criteria document specifying the quality standards of the Project; and
- Development of the final Project permitting and construction schedule, taking into account the timing of the wet and dry seasons, proper execution times for the works, and appropriate construction sequencing.

Task 10 Economic and Financial Analysis

The Contractor shall evaluate the market options for Project energy generation and capacity value, including the following:

- Selling the power in to the open market;
- Signing a power purchase agreement with a distribution company; and
- Selling the power under other options, including under a possible national renewable portfolio standard.

The Contractor shall compare the Project energy values with other renewable energy options and the power market projections by relevant entities, such as the Consejo Nacional de Energía (CNE) and Unidad de Transacciones (UT).

The Contractor shall construct a financial model of the Project that utilizes reasonable costs of debt and equity for the Project and the on-going costs for the Project, including administration, operations, maintenance, and an allowance for repairs. The model shall be constructed to allow the evaluation of different scenarios of the cost of debt, possible project cost over-run, inflation, and different power values.

Task 11: Regulatory Analysis and Implementation Plan

The Contractor shall conduct a regulatory analysis of the Project and shall develop an implementation plan for the Project. The Contractor shall verify the Project's compliance with applicable regulations, such as those related to the concession from Superintendencia General de Electricidad y Telecomunicaciones (SIGET) and the environmental approval from MARN. The Contractor shall also evaluate the Project's possible eligibility for participation in any incentive programs or renewable portfolio standard.

The Contractor shall identify prospective U.S. suppliers of equipment and services for the Project in accordance with Clause J of Annex II of the Grant Agreement. The Contractor shall identify the potential value of U.S. exports of equipment and services and shall prepare a searchable list of U.S. suppliers that outlines prospective U.S. sources for the procurement of goods and services related to Project implementation. The list shall include business name, point of contact, address, telephone and fax numbers, e-mail address, and a general description of products and services that may be procured.

Task 12: Final Report

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of all work performed under these Terms of Reference ("Final Report"). The Final Report shall be organized according to the above tasks, and shall include all deliverables and documents that have been provided to the Grantee. The Final Report shall be prepared in accordance with Clause J of Annex II of the Grant Agreement.

Annex II

USTDA Mandatory Contract Clauses

A. USTDA Mandatory Clauses Controlling

The parties to this Contract acknowledge that this Contract is funded in whole or in part by the U.S. Trade and Development Agency ("USTDA") under the Grant Agreement between the Government of the United States of America acting through USTDA and INGENDEHSA, S.A. de C.V. ("Client"), dated _____ ("Grant Agreement"). The Client has selected _____ ("Contractor") to perform the feasibility study ("Study") for the Ilopango-Aguacayo Hydropower project ("Project") in El Salvador ("Host Country"). The Client and the Contractor are the parties to this Contract, and they hereinafter are referred to collectively as the "Contract Parties." Notwithstanding any other provisions of this Contract, the following USTDA Mandatory Contract Clauses shall govern. All subcontracts entered into by Contractor funded or partially funded with USTDA Grant funds shall include these USTDA Mandatory Contract Clauses, except for clauses B(1), G, H, I, and J. In addition, in the event of any inconsistency between the Grant Agreement and the Contract or any subcontract thereunder, the Grant Agreement shall be controlling.

B. USTDA as Financier

(1) USTDA Approval of Contract

This Contract, and any amendment thereto, including any amendment to any annex thereto, and any proposed assignment of this Contract, must be approved by USTDA in writing in order to be effective with respect to the expenditure of USTDA Grant funds. USTDA will not authorize the disbursement of USTDA Grant funds until the Contract conforms to modifications required by USTDA during the Contract review process and the Contract has been formally approved by USTDA. To make this review in a timely fashion, USTDA must receive from either the Client or the Contractor an English language version of a final negotiated draft Contract or a signed Contract to the attention of the General Counsel's office at USTDA's address listed in Clause N below.

(2) USTDA Not a Party to the Contract

It is understood by the Contract Parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of this Contract and amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract funded under the Grant Agreement. The Contract Parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval

rights shall be made as a financier in the course of financing the Study and shall not be construed as making USTDA a party to the Contract. The Contract Parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the Contract Parties or the parties to any subcontract, jointly or separately; and in consideration of USTDA's role as financier, the Contract Parties further agree that USTDA's rights may be exercised without thereby incurring any responsibility or liability, in contract, tort, or otherwise, to the Contract Parties or the parties to any subcontract. Any approval or failure to approve by USTDA shall not bar the Client or USTDA from asserting any right they might have against the Contractor, or relieve the Contractor of any liability which the Contractor might otherwise have to the Client or USTDA.

C. Nationality, Source, and Origin

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and professional services funded by USTDA under the Grant Agreement:

(a) The Contractor must be a U.S. firm;

(b) The Contractor may use U.S. subcontractors without limitation;

(c) Employees of U.S. Contractor or U.S. subcontractor firms shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the United States, except as provided pursuant to subpart (d) below;

(d) Up to twenty percent (20%) of the USTDA Grant amount may be used to pay for services performed by (i) Host Country subcontractors, and/or (ii) Host Country nationals who are employees of the Contractor;

(e) A Host Country subcontractor may only be used for specific services from the Terms of Reference identified in the subcontract;

(f) Subcontractors from countries other than the United States or Host Country may not be used;

(g) Goods purchased for performance of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source, and origin in the United States; and

(h) Goods and services incidental to Study support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions.

USTDA will make available further details concerning these provisions upon request.

D. Recordkeeping and Audit

The Contractor and subcontractors funded under the Grant Agreement shall maintain, in accordance with generally accepted accounting procedures, books, records, and other documents, sufficient to reflect properly all transactions under or in connection with the Contract. These books, records, and other documents shall clearly identify and track the use and expenditure of USTDA funds, separately from other funding sources. Such books, records, and documents shall be maintained during the period of performance of work provided for by this Contract, and for a period of three (3) years after final disbursement by USTDA. The Contractor and subcontractors shall afford USTDA, or its authorized representatives, the opportunity at reasonable times for inspection and audit of such books, records, and other documentation.

E. U.S. Carriers

(1) Air

Transportation by air of persons or property funded under the Grant Agreement shall be on U.S. flag carriers in accordance with the Fly America Act, 49 U.S.C. 40118, to the extent service by such carriers is available, as provided under applicable U.S. Government regulations.

(2) Marine

Transportation by sea of property funded under the Grant Agreement shall be on U.S. carriers in accordance with U.S. cargo preference law.

F. Workman's Compensation Insurance

The Contractor shall provide adequate Workman's Compensation Insurance coverage for work performed under this Contract.

G. Reporting Requirements

The Contractor shall advise USTDA by letter as to the status of the Project on March 1st annually for a period of two (2) years after completion of the Study. In addition, if at any time the Contractor receives follow-on work from the Client, the Contractor shall so notify USTDA and designate the Contractor's contact point including name, telephone, fax number, and e-mail address. Since this information may be made publicly available by USTDA, any information which is confidential shall be designated as such by the Contractor and provided separately to USTDA. USTDA will maintain the confidentiality of such information in accordance with applicable law.

H. Disbursement Procedures

(1) USTDA Approval of Contract

Disbursement of Grant funds will be made only after USTDA approval of this Contract.

(2) Payment Schedule Requirements

A payment schedule for disbursement of Grant funds to the Contractor shall be included in this Contract. Such payment schedule must conform to the following USTDA requirements: (1) up to twenty percent (20%) of the total USTDA Grant amount may be used as a mobilization payment; (2) all other payments, with the exception of the final payment, shall be based upon Contract performance milestones; and (3) the final payment may be no less than fifteen percent (15%) of the total USTDA Grant amount, payable upon approval by USTDA of a Final Report that has been (i) prepared and submitted in accordance with the requirements set forth in Clause I below, and (ii) approved in writing by the Client in the manner provided for by Clause H(3)(b)(iii) below. Invoicing procedures for all payments are described below.

(3) Contractor Invoice Requirements

USTDA will make all disbursements of USTDA Grant funds directly to the Contractor. The Contractor must provide USTDA with an ACH Vendor Enrollment Form (available from USTDA) with the first invoice. The Client shall request disbursement of funds by USTDA to the Contractor for performance of the Contract by submitting the following to USTDA:

(a) Contractor's Invoice

The Contractor's invoice shall include reference to an item listed in the Contract payment schedule, the requested payment amount, and an appropriate certification by the Contractor, as follows:

(i) For a mobilization payment (if any):

> "As a condition for this mobilization payment, the Contractor certifies that it will perform all work in accordance with the terms of its Contract with the Client. To the extent that the Contractor does not comply with the terms and conditions of the Contract, including the USTDA Mandatory Contract Clauses contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(ii) For Contract performance milestone payments:

> "The Contractor has performed the work described in this invoice in accordance with the terms of its Contract with the Client and is entitled to payment thereunder. To the extent the Contractor has not complied with the terms and conditions of the Contract, including the USTDA Mandatory Contract Clauses contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(iii) For final payment:

> "The Contractor has performed the work described in this invoice in accordance with the terms of its Contract with the Client and is entitled to payment thereunder. Specifically, the Contractor has submitted the Final Report to the Client, as required by the Contract, and received the Client's approval of the Final Report. To the extent the Contractor has not complied with the terms and conditions of the Contract, including the USTDA Mandatory Contract Clauses contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(b) Client's Approval of the Contractor's Invoice

(i) The invoice for a mobilization payment must be approved in writing by the Client.

(ii) For Contract performance milestone payments, the following certification by the Client must be provided on the invoice or separately:

> "The services for which disbursement is requested by the Contractor have been performed satisfactorily, in accordance with applicable Contract provisions and the terms and conditions of the USTDA Grant Agreement."

(iii) For final payment, the following certification by the Client must be provided on the invoice or separately:

> "The services for which disbursement is requested by the Contractor have been performed satisfactorily, in accordance with applicable Contract provisions and the terms and conditions of the USTDA Grant Agreement. The Final Report submitted by the Contractor has been reviewed and approved by the Client."

(c) USTDA Address for Disbursement Requests

Requests for disbursement shall be submitted to the attention of the Finance Department at USTDA's address listed in Clause N below, or by e-mail to invoices@ustda.gov.

I. Termination

(1) Method of Termination

Either Contract Party may terminate this Contract upon giving written notice to the other party and USTDA. This notice shall be effective after either 30 days, or any other period set forth elsewhere in this Contract. Furthermore, this Contract shall terminate immediately upon notification of USTDA's termination of the Grant Agreement or the term of availability of any funds thereunder.

(2) Ramifications of Termination

In the event that this Contract is terminated prior to completion, the Contractor will be eligible, subject to USTDA approval, for payment for the value of the work performed pursuant to the terms of this Contract. Likewise, in the event of such termination, USTDA is entitled to receive from the Contractor all USTDA Grant funds previously disbursed to the Contractor (including but not limited to mobilization payments) which exceed the value of the work performed pursuant to the terms of this Contract.

(3) Survivability

Clauses B, D, G, H, I, and O of the USTDA Mandatory Contract Clauses shall survive the termination of this Contract.

J. USTDA Final Report

(1) Definition

"Final Report" shall mean the Final Report described in the attached Annex I Terms of Reference or, if no such "Final Report" is described therein, "Final Report" shall mean a substantive and comprehensive report of work performed in accordance with the attached Annex I Terms of Reference, including any documents delivered to the Client.

(2) Final Report Submission Requirements

The Contractor shall provide the following to USTDA:

(a) One (1) complete hard copy of the Final Report for USTDA's records. This version shall have been approved by the Client in writing and must be in the English language. It is the responsibility of the Contractor to ensure that confidential information, if any, contained in this version be clearly marked. USTDA will maintain the confidentiality of such information in accordance with applicable law.

and

(b) One (1) hard copy of the Final Report suitable for public distribution ("Public Version"). The Public Version shall have been approved by the Client in writing and must be in the English language. As this version will be available for public distribution, it must not contain any confidential information. If the report in (a) above contains no confidential information, it may be used as the Public Version. In any event, the Public Version must be informative and contain sufficient Project detail to be useful to prospective equipment and service providers.

and

(c) Two (2) CD-ROMs, each containing a complete copy of the Public Version of the Final Report. The electronic files on the CD-ROMs shall be submitted in a commonly accessible read-only format. As these CD-ROMs will be available for public distribution, they must not contain any confidential information. It is the responsibility of the Contractor to ensure that no confidential information is contained on the CD-ROMs.

The Contractor shall also provide one (1) hard copy of the Public Version of the Final Report to the Commercial or Economic Section of the U.S. Embassy in Host Country for informational purposes.

(3) Final Report Presentation

All Final Reports submitted to USTDA must be paginated and include the following:

(a) The front cover of every Final Report shall contain the name of the Client, the name of the Contractor who prepared the report, a report title, USTDA's logo, and USTDA's address. If the complete version of the Final Report contains confidential information, the Contractor shall be responsible for labeling the front cover of that version of the Final Report with the term "Confidential Version." The Contractor shall be responsible for labeling the front cover of the Public Version of the Final Report with the term "Public Version." The front cover of every Final Report shall also contain the following disclaimer:

> "This report was funded by the U.S. Trade and Development Agency (USTDA), an agency of the U.S. Government. The opinions, findings, conclusions or recommendations expressed in this document are those of the author(s) and do not necessarily represent the official position or policies of USTDA. USTDA makes no representation about, nor does it accept responsibility for, the accuracy or completeness of the information contained in this report."

(b) The inside front cover of every Final Report shall contain USTDA's logo, USTDA's address, and USTDA's mission statement. Camera-ready copy of USTDA Final Report specifications will be available from USTDA upon request.

(c) The Contractor shall affix to the front of the CD-ROM a label identifying the Host Country, USTDA Activity Number, the name of the Client, the name of the Contractor who prepared the report, a report title, and the following language:

> "The Contractor certifies that this CD-ROM contains the Public Version of the Final Report and that all contents are suitable for public distribution."

(d) The Contractor and any subcontractors that perform work pursuant to the Grant Agreement must be clearly identified in the Final Report. Business name, point of contact, address, telephone and fax numbers, and e-mail address shall be included for Contractor and each subcontractor.

(e) The Final Report, while aiming at optimum specifications and characteristics for the Project, shall identify the availability of prospective U.S. sources of supply. Business name, point of contact, address, telephone and fax numbers, and e-mail address shall be included for each commercial source.

(f) The Final Report shall be accompanied by a letter or other notation by the Client which states that the Client approves the Final Report. A certification by the Client to this effect provided on or with the invoice for final payment will meet this requirement.

(g) The Client, USTDA, and the Commercial and/or Economic Section(s) of the U.S. Embassy in Host Country shall have irrevocable, worldwide, royalty-free, non-exclusive rights to use and distribute the Final Report.

K. Modifications

All changes, modifications, assignments, or amendments to this Contract, including the appendices, shall be made only by written agreement by the Contract Parties hereto, subject to written USTDA approval.

L. Study Schedule

(1) Study Completion Date

The completion date for the Study, which is June 30, 2013, is the date by which the Contract Parties estimate that the Study will have been completed.

(2) Time Limitation on Disbursement of USTDA Grant Funds

Except as USTDA may otherwise agree, (a) no USTDA funds may be disbursed under this Contract for goods and services which are provided prior to the Effective Date of the Grant Agreement; and (b) no USTDA funds may be disbursed more than four (4) years after the Effective Date of the Grant Agreement.

M. Business Practices

The Contract Parties recognize the existence of standards of conduct for public officials and commercial entities in their respective countries. Therefore, the Contract Parties shall fully comply with all United States and Host Country laws relating to corruption or bribery. For example, the Contractor and its subcontractors shall fully comply with the requirements of the Foreign Corrupt Practices Act, as amended (15 U.S.C. §§ 78dd-1 et seq.). Each Contract Party agrees that it shall require that any agent or representative hired to represent it in connection with the Study will comply with this paragraph and all laws which apply to activities and obligations of that Contract Party, including, but not limited to, those laws and obligations referenced above.

N. USTDA Address and Fiscal Data

Any communication with USTDA regarding this Contract shall be sent to the following address and include the fiscal data listed below:

U.S. Trade and Development Agency
1000 Wilson Boulevard, Suite 1600
Arlington, Virginia 22209-3901
USA

Phone: (703) 875-4357
Fax: (703) 875-4009

Fiscal Data:

Appropriation No.:	11 12/13 1001
Activity No.:	2012-51026A
Reservation No.:	2012284
Grant No.:	GH201251284

O. Taxes

USTDA funds provided under the Grant Agreement shall not be used to pay any taxes, tariffs, duties, fees, or other levies imposed under laws in effect in Host Country, except for taxes of a de minimis nature imposed on local lodging, food, transportation, or airport arrivals or departures. Neither the Client nor the Contractor will seek reimbursement from USTDA for taxes, tariffs, duties, fees, or other levies, except for taxes of a de minimis nature referenced above.

P. Export Licensing

The Contractor and all subcontractors are responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.

Q. Contact Persons

The Client designates the following person as the contact person for matters concerning this Contract:

Name: José Hermes Landaverde García
Title: Director Presidente
Phone/Fax: +(503) 2273-6243
E-Mail: hermeslandaverde@gmail.com

The Contractor designates the following person as the contact person for matters concerning this Contract:

Name:
Title:
Phone:
Fax:
E-Mail:

If anyone designated by a Contract Party as a contact person ceases service as a contact person at any point during the ten-year period following the date of signing of this Contract, the Contract Party that had designated that contact person shall provide USTDA and the other Contract Party with the name and contact information of a replacement contact person.

R. Liability

This Contract may include a clause that limits the liability of the Contract Parties, provided that such a clause does not (i) disclaim liability for special, incidental, general, or punitive damages, or (ii) limit the total amount of damages recoverable to an amount less than the total amount disbursed to the Contractor pursuant to this Contract.

S. Arbitration

If the Contract Parties submit any dispute arising under this Contract for arbitration, the scope of any such arbitration shall be limited to the Contract Parties' rights and/or obligations under this Contract and may not extend to any right or obligation of USTDA. The arbitrator(s) shall not arbitrate issues directly affecting the rights or obligations of USTDA.

A N N E X 5

TERMS OF REFERENCE
(FROM USTDA GRANT AGREEMENT)

Annex I

Terms of Reference

Objective

The objective of the feasibility study ("Study") for the Ilopango-Aguacayo Hydropower Project ("Project") is to conduct detailed technical and environmental assessments to support the development of a 17 MW hydropower facility on Lake Ilopango in El Salvador. The Study will allow INGENDEHSA, S.A. de C.V. ("Grantee") to gather key geological, geotechnical, hydrological, and topographical data, record baseline environmental conditions, complete environmental impact assessment requirements, and develop preliminary designs for the Project.

General Considerations for Deliverables and Documents

The U.S. firm selected by the Grantee to perform the Study ("Contractor") shall undertake a quality control review process, including a technical and editorial review, of all deliverables and documents submitted to the Grantee to ensure readability, accuracy, and consistency. The interim deliverables specified in these Terms of Reference shall serve to keep the Grantee informed about the Contractor's work on the Study and to ensure that the Contractor's findings are acceptable to the Grantee before critical decisions are made on the Study. The Contractor shall submit monthly progress reports to the Grantee.

Activities

Task 1: Collection and Review of Existing Information and Initial Topography

The Contractor shall collect and review existing information on the Project, which will be provided by the Grantee.

The Contractor shall utilize aerial mapping, geographic information systems (GIS), and field methods to conduct the following:

- Revision or confirmation of Lake Ilopango area-capacity curve, particularly in the top 5 meters of the lake;
- Topographical survey of the alignment of the tunnel/penstock alignment with a corridor 100 meters wide;
- Topographical survey of the powerhouse area 100 x 100 meters wide with contour interval of 1 meter;
- Topographical survey of the Aguacayo River in the vicinity of the powerhouse, including sections upstream and downstream that will allow for placement of potential re-regulating structure for peak flow retiming and for establishing the design flood for the powerhouse;
- Map level survey to determine the location of any new access roads or roads that require improvement; and

- Map level survey to determine the location of transmission lines for interconnection.

Interim Deliverable No. 1:
The Contractor shall prepare and submit to the Grantee an interim report summarizing the findings from Task 1.

Task 2: Initial Geological, Geotechnical, and Seismicity Assessments

The Contractor shall conduct the following assessments:

- Field study and specific geology mapping of the proposed intake, powerhouse area, and the water conveyance area, including the type, quality, and characteristics of the materials in these areas. The field studies shall result in mapping usable for project alignment and decisions as to location of tunnels and penstock. The geologic mapping shall provide for an informed decision on the transition point between the tunnel and penstock in Task 5;
- Studies of fault lines and other seismic considerations, and seismic risk for the Project as proposed. The Contractor shall identify areas of avoidance or possible modifications to the Project features or alignment;
- Establish a preliminary disposal plan for tunnel materials;
- Select an area for the final intake placement based on the material conditions at the lake shoreline;
- Evaluate the slope stability in the vicinity of the powerhouse and intake both for construction and long-term periods and identify any design needs possible instability may impose; and
- Definition of the geotechnical field surveys (test bore holes, seismic refraction studies, test pits) to be conducted in Task 6, based on the findings of the mapping and seismic studies. The program of geotechnical field surveys shall be suitable for determining the following:
    - The final amount of tunnel versus penstock for the Project water conveyance. Depending on the risk and cost, it may be appropriate for the Project to utilize a longer high pressure tunnel and limit the buried penstock;
    - Slope stability tests, test pits, or trenches, along with any proposed laboratory testing for soils and rock; and
    - Final alignment for the water conveyance facilities, powerhouse, and intake.

Task 3: Hydrology Assessment

The Contractor shall define a full hydrologic record of the Project, including inflow/outflow of the lake, the hydrology of the Desague River, Jiboa River, and Aguacayo River for final sizing and operations studies and development of the Project features. The Contractor shall develop a mathematical model to balance inflow/outflow of Lake Ilopango and the impacted rivers.

The Contractor shall utilize available information, including a long-term record of lake outflow at the Desague River and extensive meteorological data at sites surrounding the lake.

The Contractor shall conduct the following assessments:

- Correlating the existing hydrological data from the Desague River to meteorological data and using appropriate statistical techniques, extend the river flow data to the period of the meteorological data (the final record should provide an inflow/outflow record for a common period from 1969 to the latest available date);
- Evaluating the rainfall and runoff for the period of record to determine any characteristics of infiltration, subsurface flow, evaporation, or other loss conditions in the lake;
- Determination of the period of record average daily flows and influence on the lake level, due to the estimated rating curve of outflow at the lake outlet; and
- Analyze (using a hydrologic/hydraulic simulation) of the lake inflow/outflow dynamics that can be used on a daily or hourly (peak) basis to determine the following:
    - Impact of minimum flow in the Desague River, as may be defined in the environmental studies;
    - Impact on lake levels, particularly during the dry season with regard to lake level changes related to peaking of the Project or other operation of the Project;
    - Revised flow release regime in to the Aguacayo River; and
    - Calculation of energy generated by the Project in alternative scenarios for comparison of options, as appropriate, using estimated losses in water conveyance.

Task 4: Environmental Baseline Assessment

The Contractor shall develop detailed plans and start data collection for environmental baseline studies in the areas of the impact, including the following areas:

- Identification and documentation of the baseline biota and water quality that could be affected by the Project in the areas of the intake, Desague River, Jiboa River, and Aguacayo River. The data collection shall include potentially affected species and native species that could be sensitive to Project construction and operations;
- Investigate the uses and sensitivity of Lake Ilopango, including historical changes and variation of the lake level for assessment of the impact of lake level changes;
- Design a program and collect social data that takes into account the uses of the lake and affected river stretches, as well as the general area of impact of the water conveyance facilities;
- Confirm that there are no relocations involved in the construction of the Project; and
- Identify any Project conflicts or impacts that place limitations on the placement, construction, or operations of the Project.

The environmental baseline studies shall be designed and executed in accordance with the guidelines and regulations provided by El Salvador's Ministry of the Environment and Natural Resources ("MARN").

Task 5: Initial Project Formulation and Assessment

The Contractor shall complete an initial Project formulation and assessment, based on the findings from Tasks 1-4 and on the opportunities and limitations identified. The Contractor shall take into account the following:

- Any limitations or any environmental or social conditions that will impact or limit Project implementation;
- Evaluate the geological, hydrological, and topographical data to determine where and how (tunnel versus penstock) the water intake, conveyance, and powerhouse facilities will be located;
- Evaluate the need for a surge tank, based on the selection of water conveyance and preliminary identification of turbine equipment to be used;
- Utilize the hydrologic/hydraulic simulation performed in Task 3 to optimize project facilities and re-optimize the installed capacity and energy output of the Project;
- Provide the layout and sections of the intake and powerhouse, as well as the water conveyance alignment;
- Determine the need for any re-regulating structure in the Aguacayo River, and determine the best site;
- Provide a final identification of the alignment of access roads and transmission lines;
- Revise the Project cost estimate and Project schedule on a preliminary basis; and
- Confirm the initial economic viability of the Project.

Interim Deliverable No. 2:
The Contractor shall prepare and submit to the Grantee an interim report detailing the findings from Tasks 1-5, including a detailed chapter on each of the five tasks, the basis for Project final design, and highlighting the updated Project formulation.

Task 6: Geotechnical Field Surveys

The Contractor shall perform the geotechnical field surveys designed in Task 2. The field surveys shall be sufficient to support the eventual tender of the tunnel/penstock construction. The Contractor shall perform the field surveys to a level that allows for the completion of the water conveyance design.

Task 7: Environmental Impact Assessment and Development Impact Assessment

Based on the environmental baseline assessment conducted in Task 4 and the updated Project formulation, the Contractor shall evaluate the environmental and social impacts in detail, as well as the proposed impact mitigation plan. The Contractor shall conduct

additional baseline and key impact field surveys to minimize and mitigate impacts. The environmental impact assessment shall meet the environmental impact assessment requirements of MARN and the World Bank.

For the benefit of those interested in the Project, the Contractor shall assess the development benefits associated with the Project and the methodology for measuring those benefits. The assessment shall include examples of the development benefits that would be expected in the Host Country if the Project is implemented as outlined in the Study. The Contractor shall focus on examples from the categories listed below and shall develop a methodology for assessing these impacts over time. The Contractor shall only list benefits in the categories that are applicable to the Project. The categories to be considered are as follows:

- *Infrastructure*: Provide a statement on the expected infrastructure impacts of the Project, particularly in relation electricity generation, transmission, and distribution.
- *Human Capacity Building*: Assess the number and type of local positions that would be needed to construct and operate the Project.
- *Market-Oriented Reforms*: Provide a description of any regulations, laws, or institutional changes that may be recommended, as well as their anticipated effect.
- *Technology Transfer and Productivity Improvement*: Provide a description of any advanced technologies that would be utilized and any efficiencies that would be gained.
- *Other*: Describe any other developmental benefits derived from the Project, such as improved flood control, environmental, or societal benefits.

Task 8: Final Topographical Surveys

The Contractor shall conduct final topographical work in key areas for the powerhouse construction, any re-regulating structure, the tunnel portal/penstock area, and the intake area. The Contractor shall finalize the topographic map for final Project design. The Contractor shall leave reference marks at the intake location, tunnel portal/transition location, and powerhouse location for future layout and construction.

Task 9: Final Project Optimization and Design

Utilizing the input from the final field surveys and the Project layout, the Contractor shall optimize the Project capacity and complete the Project design, as follows:

- Calculation of the Project design flood for design of the powerhouse setting;
- Final alignment of tunnel and penstock, and preliminary designs of tunnel sections, including expected lining estimates, feasibility-level details of penstock placement, size, and thickness;
- Evaluation of the Project's impacts on possible lake flooding and the projected value of such savings in the instance of flooding;
- Selection of the number of units and type of turbines to be utilized in the Project and solicitation of budgetary quotes from at least two U.S. suppliers (it is

expected that the electrical/mechanical supplier will also provide for equipment for control and protection up to the transformer);

- Identify and provide performance specifications for any other electrical equipment or switchgear for interconnection;
- Identification of auxiliary works for drainage, pumping, or bypass valves;
- Final layout of access roads and transmission corridor and line;
- Functional and definitional drawings in AutoCad for all pertinent Project features, including the powerhouse, discharge, river structures, intake, surge tank, reregulating facilities, and other pertinent Project facilities;
- A single line diagram for the powerhouse, relay and protection systems, and substations necessary for interconnection;
- A load flow study for the transmission line and interconnection point at the grid;
- A plan for handling tunnel and excavation spoil materials for the water conveyance works;
- A final evaluation of the operations of the Project, identifying any regime changes to the lake level caused by the Project;
- A cost estimate of the Project works, based on quantities of materials and equipment necessary. The estimate shall be based on international costs, except where local cost estimates are appropriate;
- A preliminary design criteria document specifying the quality standards of the Project; and
- Development of the final Project permitting and construction schedule, taking into account the timing of the wet and dry seasons, proper execution times for the works, and appropriate construction sequencing.

Task 10 Economic and Financial Analysis

The Contractor shall evaluate the market options for Project energy generation and capacity value, including the following:

- Selling the power in to the open market;
- Signing a power purchase agreement with a distribution company; and
- Selling the power under other options, including under a possible national renewable portfolio standard.

The Contractor shall compare the Project energy values with other renewable energy options and the power market projections by relevant entities, such as the Consejo Nacional de Energía (CNE) and Unidad de Transacciones (UT).

The Contractor shall construct a financial model of the Project that utilizes reasonable costs of debt and equity for the Project and the on-going costs for the Project, including administration, operations, maintenance, and an allowance for repairs. The model shall be constructed to allow the evaluation of different scenarios of the cost of debt, possible project cost over-run, inflation, and different power values.

Task 11: Regulatory Analysis and Implementation Plan

The Contractor shall conduct a regulatory analysis of the Project and shall develop an implementation plan for the Project. The Contractor shall verify the Project's compliance with applicable regulations, such as those related to the concession from Superintendencia General de Electricidad y Telecomunicaciones (SIGET) and the environmental approval from MARN. The Contractor shall also evaluate the Project's possible eligibility for participation in any incentive programs or renewable portfolio standard.

The Contractor shall identify prospective U.S. suppliers of equipment and services for the Project in accordance with Clause J of Annex II of the Grant Agreement. The Contractor shall identify the potential value of U.S. exports of equipment and services and shall prepare a searchable list of U.S. suppliers that outlines prospective U.S. sources for the procurement of goods and services related to Project implementation. The list shall include business name, point of contact, address, telephone and fax numbers, e-mail address, and a general description of products and services that may be procured.

Task 12: Final Report

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of all work performed under these Terms of Reference ("Final Report"). The Final Report shall be organized according to the above tasks, and shall include all deliverables and documents that have been provided to the Grantee. The Final Report shall be prepared in accordance with Clause J of Annex II of the Grant Agreement.

A N N E X 6

U.S. FIRM INFORMATION FORM

USTDA-Funded Feasibility Study, Technical Assistance, or Training Grant

U.S. Firm Information Form

This form is designed to enable the U.S. Trade and Development Agency ("USTDA") to obtain information about entities and individuals proposed for participation in USTDA-funded activities. Information in this form is used to conduct screening of entities and individuals to ensure compliance with legislative and executive branch prohibitions on providing support or resources to, or engaging in transactions with, certain individuals or entities with which USTDA must comply.

USTDA Activity Number [*To be completed by USTDA*]	2012-51026A						
Activity Type [*To be completed by USTDA*]	✓	Feasibility Study		Technical Assistance		Other (specify)	
Activity Title [*To be completed by USTDA*]	El Salvador: Ilopango-Aguacayo Hydropower Project						
Full Legal Name of U.S. Firm							
Business Address (street address only)							
Telephone		Fax		Website			
Year Established (include any predecessor company(s) and year(s) established, if appropriate). Please attach additional pages as necessary.							
Please provide a list of directors and principal officers as detailed in Attachment A. Attached?		Yes					
Type of Ownership		Publicly Traded Company					
		Private Company					
		Other (please specify)					
If Private Company or Other (if applicable), provide a list of shareholders and the percentage of their ownership. In addition, for each shareholder that owns 15% or more shares in U.S. Firm, please complete Attachment B.							
Is the U.S. Firm a wholly-owned or partially owned subsidiary?		Yes					
		No					
If so, please provide the name of the U.S. Firm's parent company(s). In addition, for any parent identified, please complete Attachment B.							
Is the U.S. Firm proposing to subcontract some of the proposed work to another firm?		Yes					
		No					
If yes, U.S. Firm shall complete Attachment C for each subcontractor. Attached?		Yes					
		Not applicable					
Project Manager							
Name		Surname					
		Given Name					
Address							
Telephone							
Fax							
Email							
Negotiation Prerequisites							
Discuss any current or anticipated commitments which may impact the ability of the U.S. Firm or its subcontractors to complete the Activity as proposed and reflect such impact within the project schedule.							
Identify any specific information which is needed from the Grantee before commencing negotiations.							

U.S. Firm may attach additional sheets, as necessary.

U.S. Firm's Representations			
U.S. Firm shall certify to the following (or provide any explanation as to why any representation cannot be made):			
1. U.S. Firm is a *[check one]* ☐ Corporation ☐ LLC ☐ Partnership ☐ Sole Proprietor ☐ Other:			
duly organized, validly existing and in good standing under the laws of the State of: [insert state]			
The U.S. Firm has all the requisite corporate power and authority to conduct its business as presently conducted, to submit this proposal, and if selected, to execute and deliver a contract to the Grantee for the performance of the USTDA Activity. The U.S. Firm is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment or ineligible for the award of contracts by any federal or state governmental agency or authority.			
2. The U.S. Firm has included herewith, a copy of its Articles of Incorporation (or equivalent charter or document issued by a designated authority in accordance with applicable laws that provides information and authentication regarding the legal status of an entity) and a Certificate of Good Standing (or equivalent document) issued within 1 month of the date of signature below			
by the State of: [insert state]			
The U.S. Firm commits to notify USTDA and the Grantee if it becomes aware of any change in its status in the state in which it is incorporated. USTDA retains the right to request an updated certificate of good standing.			
3. Neither the U.S. Firm nor any of its principal officers have, within the ten-year period preceding the submission of this proposal, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating federal or state criminal tax laws, or receiving stolen property.			
4. Neither the U.S. Firm, nor any of its principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 3 above.			
5. There are no federal or state tax liens pending against the assets, property or business of the U.S. Firm. The U.S. Firm, has not, within the three-year period preceding the submission of this proposal, been notified of any delinquent federal or state taxes in an amount that exceeds US$3,000 for which the liability remains unsatisfied. Taxes are considered delinquent if (a) the tax liability has been fully determined, with no pending administrative or judicial appeals; and (b) a taxpayer has failed to pay the tax liability when full payment is due and required.			
6. The U.S. Firm has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself of its debts under any bankruptcy, insolvency or other similar law. The U.S. Firm has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.			
7. The U.S. Firm certifies that it complies with USTDA Nationality, Source, and Origin Requirements and shall continue to comply with such requirements throughout the duration of the USTDA-funded activity. The U.S. Firm commits to notify USTDA and the Grantee if it becomes aware of any change which might affect U.S. Firm's ability to meet the USTDA Nationality, Source, and Origin Requirements.			
The U.S. Firm shall notify USTDA if any of the representations are no longer true and correct.			
U.S. Firm certifies that the information provided in this form is true and correct. U.S. Firm understands and agrees that the U.S. Government may rely on the accuracy of this information in processing a request to participate in a USTDA-funded activity. If at any time USTDA has reason to believe that any person or entity has willfully and knowingly provided incorrect information or made false statements, USTDA may take action under applicable law. The undersigned represents and warrants that he/she has the requisite power and authority to sign on behalf of the U.S. Firm.			
Name		Signature	
Title			
Organization		Date	

ATTACHMENT A

USTDA-Funded Feasibility Study, Technical Assistance, or Training Grant

U.S. Firm Information Form – Directors and Principal Officers

Provide a list of all directors and principal officers (e.g., President, Chief Executive Officer, Vice-President(s), Secretary and Treasurer). Please provide full names including surname and given name.

USTDA Activity Number [*To be completed by USTDA*]	2012-51026A
Activity Title [*To be completed by USTDA*]	El Salvador: Ilopango-Aguacayo Hydropower Project
Full Legal Name of Entity	

Title	Name		
(e.g., Director, President, Chief Executive Officer, Vice-President(s), Secretary, Treasurer) ** Please place an asterisk (*) next to the names of those principal officers who will be involved in the USTDA-funded activity*	**Surname**	**Given Name**	**Middle Name**

ATTACHMENT B

USTDA-Funded Feasibility Study, Technical Assistance, or Training Grant

U.S. Firm Information Form – Shareholder(s) and Parent Company(s)

If applicable, U.S. Firm provided a list of shareholders and the percentage of their ownership. This form shall be completed for each shareholder that owns 15% or more shares in U.S. Firm, as well as any parent corporation of the U.S. Firm ("Shareholder"). In addition, this form shall be completed for each shareholder identified in Attachment B that owns 15% or more shares in any Shareholder, as well as any parent identified in Attachment B.

USTDA Activity Number [*To be completed by USTDA*]	2012-51026A
Activity Title [*To be completed by USTDA*]	El Salvador: Ilopango-Aguacayo Hydropower Project
Full Legal Name of U.S. Firm	
Full Legal Name of Shareholder	
Business Address of Shareholder (street address only)	
Telephone number	Fax Number
Year Established (include any predecessor company(s) and year(s) established, if appropriate). Please attach additional pages as necessary.	
Country of Shareholder's Principal Place of Business	
Please provide a list of directors and principal officers as detailed in Attachment A. Attached?	✓ Yes
Type of Ownership	☐ Publicly Traded Company ☐ Private Company ☐ Other
If applicable, provide a list of shareholders and the percentage of their ownership. In addition, for each shareholder that owns 15% or more shares in Shareholder, please complete Attachment B.	
Is the Shareholder a wholly-owned or partially owned subsidiary?	☐ Yes ☐ No
If so, please provide the name of the Shareholder's parent(s). In addition, for any parent identified, please complete Attachment B.	

Shareholder may attach additional sheets, as necessary.

ATTACHMENT C

USTDA-Funded Feasibility Study, Technical Assistance, or Training Grant

Subcontractor Information Form

This form is designed to enable the U.S. Trade and Development Agency ("USTDA") to obtain information about entities and individuals proposed for participation in USTDA-funded activities. Information in this form is used to conduct screening of entities and individuals to ensure compliance with legislative and executive branch prohibitions on providing support or resources to, or engaging in transactions with, certain individuals or entities with which USTDA must comply.

USTDA Activity Number [*To be completed by USTDA*]	2012-51026A
Activity Title [*To be completed by USTDA*]	El Salvador: Ilopango-Aguacayo Hydropower Project
Full Legal Name of Prime Contractor U.S. Firm ("U.S. Firm")	
Full Legal Name of Subcontractor	
Business Address of Subcontractor (street address only)	
Telephone Number	
Fax Number	
Year Established (include any predecessor company(s) and year(s) established, if appropriate). Please attach additional pages as necessary.	

Subcontractor Point of Contact

Name	Surname	
	Given Name	
Address		
Telephone		
Fax		
Email		

Subcontractor's Representations											
Subcontractor shall provide the following (or any explanation as to why any representation cannot be made), made as of the date of the proposal:											
1. Subcontractor is a *[check one]*		Corporation		LLC		Partnership		Sole Proprietor		Other	
duly organized, validly existing and in good standing under the laws of:	[insert state (if U.S.) or country] .										
The subcontractor has all the requisite corporate power and authority to conduct its business as presently conducted, to participate in this proposal, and if the U.S. Firm is selected, to execute and deliver a subcontract to the U.S. Firm for the performance of the USTDA Activity and to perform the USTDA Activity. The subcontractor is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment or ineligible for the award of contracts by any federal or state governmental agency or authority.											
2. Neither the subcontractor nor any of its principal officers have, within the ten-year period preceding the submission of the Offeror's proposal, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating federal or state criminal tax laws, or receiving stolen property.											
3. Neither the subcontractor, nor any of its principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 2 above.											
4. There are no federal or state tax liens pending against the assets, property or business of the subcontractor. The subcontractor, has not, within the three-year period preceding this RFP, been notified of any delinquent federal or state taxes in an amount that exceeds $3,000 for which the liability remains unsatisfied. Taxes are considered delinquent if (a) the tax liability has been fully determined, with no pending administrative or judicial appeals; and (b) a taxpayer has failed to pay the tax liability when full payment is due and required.											
5. The subcontractor has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself or its debts under any bankruptcy, insolvency or other similar law. The subcontractor has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.											
6. The Subcontractor certifies that it complies with the USTDA Nationality, Source, and Origin Requirements and shall continue to comply with such requirements throughout the duration of the USTDA-funded activity. The Subcontractor commits to notify USTDA, the Contractor, and the Grantee if it becomes aware of any change which might affect U.S. Firm's ability to meet the USTDA Nationality, Source, and Origin Requirements.											
The selected Subcontractor shall notify the U.S. Firm, Grantee and USTDA if any of the representations included in its proposal are no longer true and correct.											
Subcontractor certifies that the information provided in this form is true and correct. Subcontractor understands and agrees that the U.S. Government may rely on the accuracy of this information in processing a request to participate in a USTDA-funded activity. If at any time USTDA has reason to believe that any person or entity has willfully and knowingly provided incorrect information or made false statements, USTDA may take action under applicable law. The undersigned represents and warrants that he/she has the requisite power and authority to sign on behalf of the Subcontractor.											
Name				Signature							
Title											
Organization				Date							