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MEXICO

RESIDENTIAL USE OF RENEWABLE ENERGY AND ENERGY EFFICIENCY IN BAJA CALIFORNIA

(ME-T1023)

PLAN OF OPERATIONS

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BASIC SOCIOECONOMIC DATA

For basic socioeconomic data, including public debt information, please refer to the following address:
http://www.iadb.org/RES/index.cfm?fuseaction=externallinks.countrydata

INFORMATION AVAILABLE IN THE FILES OF INE/TSP

PREPARATION:

Profile

EXECUTION:

Terms of Reference

ABBREVIATIONS

BC	The State of Baja California
COF/CME	IDB's Country Office in Mexico
CONAE	*Comisión Nacional para el Ahorro de Energía*, Energy Efficiency Commission
EE	Energy Efficiency
ESR	Environmental and Social Review
IDB	Inter-American Development Bank
IIE	*Instituto de Investigaciones Eléctricas*, Electric Research Institute
INE/ENE	Infrastructure and Environment Department / Energy Division
JFC	Japanese Trust Fund for Consultancy Services
NGO	Non-Governmental Organizations
PPMR	Project Performance Monitoring Report
PV	Photovoltaic panels
RE	Renewable Energy
SECCI	Sustainable Energy and Climate Change Initiative
TC	Technical Cooperation

PLAN OF OPERATIONS

(ME-T1023)

EXECUTIVE SUMMARY

Beneficiary:	Mexico		
Project team:	Arnaldo Vieira de Carvalho (INE/ENE), Team Leader; Laura Natalia Rojas and Alberto Levy (INE/ENE); German Cruz (ENE/CES); Miguel Coronado (LEG/SGO); and Pedro Buonomo (COF/CME); under supervision of Leandro Alves (Head of Division INE/ENE).		
Executing agency:	Inter-American Development Bank		
Target Beneficiaries:	The State of Baja California (BC), its lower income population and *Comisión Nacional para el Ahorro de Energía* (CONAE)		
Financing:	IDB-Japanese Trust Fund for Consultancy Services (JCF):	US$	749,000
	Local Counterpart:	US$	190,000
	Total:	US$	939,000
Objectives:	The program objective is to provide support to a pilot project using renewable energy and energy efficiency for lower income residences connected to the electric grid in order to evaluate applied measures and replicate in other communities. It will also develop activities related to energy efficiency standards and norms and help replicate results and attract future investments in renewable energy and energy efficiency projects in other Mexican States.		
Execution and disbursement time table:	12 and 15 months, respectively		
Special contractual conditions:	None		
Exceptions to Bank Policies and Procedures:	None		
Environmental and social review:	The project was cleared by the ESR committee on 07/28/2008. No negative environmental or social effects were identified and has been classified as "C" according to the Safeguard Classification Tool (see paragraph 7.1).		
Coordination with Other Donors:	N/A		

I. BACKGROUND AND JUSTIFICATION

1.1 Within the overall framework of financing investment projects with high social returns, the State of Baja California (BC) is determined to seek alternative energy sources to alleviate the economic burden of its constituents due to high payments for electricity energy consumption. To this effect, BC has decided to implement a project in Mexicali using energy efficiency (EE) and solar energy, especially photovoltaic panels (PV) in select residential units connected to the existing electric grid.

1.2 The idea is to learn from pilot projects using EE and solar energy resources so in the future more options are available to provide sustainable energy services at affordable prices for the population. This would also have a highly positive environmental impact given the fact that most of the energy currently being used today in BC comes from fossil fuels that are proven to produce harmful emissions to the atmosphere.

1.3 The *Instituto de Investigaciones Eléctricas* (IIE, the Electric Research Institute of Mexico) has recently conducted a study highlighting the potential benefits of using PV systems connected to the grid. The two most important challenges to carry out this project are securing community support and access financial resources for project replication and how easy and practical can the existing Mexican regulation adapt to using these alternative energy sources. Resources must be channeled to develop priority studies and help cover the system installation in order to be financially viable to the users.

1.4 The *Comisión Nacional para el Ahorro de Energía* (CONAE, the EE Commission of Mexico) has requested support from the Inter-American Development Bank (IDB) to help make use of renewable energy (RE) sources and EE affordable solutions for all its potential users.

1.5 The IDB considers supporting RE and EE as top priority as stated in its Sustainable Energy and Climate Change Initiative (SECCI) launched in November 2006.

1.6 This project is in line with the IDB's Country Strategy with Mexico, approved by the IDB's Board of Executive Directors on 27 March 2002, which proposes focusing IDB's operations on four priority vectors: (i) modernization of the social sector and poverty reduction; (ii) integration; (iii) modernization of the State and subnational decentralization and development; and (iv) improvement of private sector productivity.

1.7 Strengthening of the capacity of subnational governments is a basic requirement within the strategic vector of modernization of the State, not just for purposes of preserving the macroeconomic and political stability, but also to make significant

progress on other important development challenges, such as improvements in the delivery of basic social services.

II. PROGRAM DESCRIPTION

A. Program goal and purpose

3.1 The program objective is to provide support through a Technical Cooperation (TC) to help develop a pilot project using RE (especially PV panels) and EE for lower income residences connected to the electric grid in order to evaluate applied measures and replicate in other communities. It will also develop activities related to EE standards and norms, help replicate results and attract future investments in RE and EE projects in other Mexican States.

B. Components

2.1 The Program will finance hiring of consulting services to develop the following program components:

2.2 **Component 1: Feasibility Studies.** This component will include three main subcomponents:

a. Evaluation of previous experiences[1], solar energy resources available in the candidate sites, solar energy technologies (PV, hybrids, thermal solar, solar water heaters, among others), and equipment installation and operational costs.

b. Evaluation of alternative tariff schemes for the energy service provision, including net metering.

c. Preliminary selection and design of EE measures for the residences, like efficient lighting and refrigeration, as input for Component 3, considering energy use profiles for individual homes, to define the optimal combination of level of EE, energy supply from the grid and from RE.

2.3 **Component 2**: **Selection of Beneficiaries**. Develop and apply a selection criteria considering family income level, willingness to pay and to share information, energy consumption profile, EE measures to be adopted and diversity of habits.

2.4 **Component 3: Selection and Implementation of EE Measures and Solar Energy Systems and Project Replication**. This component will include two subcomponents:

a. Select, design and implement solar energy technologies and EE measures.

[1] In particular, the follow up and performance evaluation of the photovoltaic facilities of the project *Valle de las Misiones* in Mexicali is envisioned.

b. Prepare investment plans including new public and private loans for project replication.

2.5 **Component 4. EE Standards and Norms**. This component will include two main subcomponents:

a. Diagnostics of the applicable standards and norms at international, national and local levels.

b. Guidelines for the preparation of EE standards and norms for the BC conditions.

c. Draft of EE standards and norms for Mexicali.

2.6 **Component 5. Dissemination Activities.** Set up a dissemination campaign through media, technical seminars and the educational system to show and discuss project results and draw other potential developers and users considering the use of RE and EE.

2.7 **Component 6**. **Monitoring and Evaluation.** Follow each activity contemplated in this initiative to ensure timely delivery and compliance with the agreed terms of reference. Monitoring mechanisms will include surveys, meetings with stakeholders, and technical evaluation of reports. Prepare a final evaluation of this initiative to be presented to the energy authorities and commissions to present evidence of the benefits and costs of RE and EE.

III. COST AND FINANCING

A. Summary cost table

3.1 The total cost of the operation would be US$939,000 of which the Japanese Trust Fund for Consultancy Services (JFC) would finance US$749,000 and the Local counterpart **in kind** would be U$190,000 to be provided by CONAE.

Table 1. Summary Cost Table

I. Type of Expense	Number of Months	Cost per Month (US$)	JCF Total (US$)	Local Counterpart (US$)	TOTAL (US$)
Component #1 - Feasibility Studies					
Honorarium.	10	8,000	80,000		80,000
Travel:			30,000		30,000
Per diem:			18,000		18,000
Component #2 - Selection of beneficiaries					
Honorarium.	2.0	8,000	16,000		16,000
Travel:			8,400		8,400
Per diem:			4,500		4,500
Component #3 - Selection/implementation of measures and systems and replication					
Honorarium.	9.5	8,000	76,000		76,000
Travel:			21,000		21,000
Per diem:			10,000		10,000
Component #4 - EE standards/norms					
Honorarium.	10.0	8,000	80,000		80,000
Travel:			21,000		21,000
Per diem:			10,000		10,000
Component #5 - Dissemination activities					
Honorarium.	3.0	6,000	18,000		18,000
Travel:			3,000		3,000
Per diem:			4,500		4,500
Component #6 – Monitoring/Evaluation					
Honorarium.	3.0	6,000	18,000		18,000
Travel:			3,000		3,000
Per diem:			4,500		4,500
Overhead:			186,100		186,100
Equipment			112,000		112,000
General support:				190,000	190,000
Contingencies			25,000		25,000
TOTAL			**749,000**	**190,000**	**939,000**

B. Description and composition of financing

3.2 The TC will be financed by the JCF to cover consultants' honoraries for the development of the components, related travel cost and the acquisition and installation of RE and EE systems. The local counterpart will be in-kind to cover logistics and administrative services required for the development of the TC.

IV. EXECUTING AGENCY AND MECHANISM

A. Executing Agency

4.1 The executing agency will be the IDB, through its Energy Division (INE/ENE) of the Infrastructure and Environment Sector Department, with support from IDB's Country Office in Mexico (CID/CME) and the project team, in close coordination

with BC (*Secretaría de Planeación y Finanzas*), and CONAE to provide all the necessary guidance and orientation to implement this initiative.

B. Executing mechanism

4.2 The IDB will follow its current policies for execution and procurement of goods and services included in this TC.

C. Execution period and disbursement schedule

4.3 The TC will be executed in 12 months and disbursed in 15 months. Based on the activities described in section II, major actions form part of the TC, as presented in the following table:

Table 2. Disbursement Schedule

DISBURSEMENT SCHEDULE		
Component	**Duration (Months)**	**Deliverable**
1. Feasibility Studies	10	Evaluation of previous experiences, solar energy resources available in the candidate sites, solar energy technologies (PV, hybrids, thermal solar, solar water heaters, among others), equipment installation and operational costs. Evaluation of alternative tariff schemes for the energy service provision. Preliminary selection and design of EE measures for the residences, like efficient lighting and refrigeration, as input for component 3 considering energy use profiles for individual homes, to define the optimal combination of level of EE, energy supply from the grid and from solar energy.
2. Selection of beneficiaries	2	List of beneficiaries based on the designed selection criteria of component 2.
3. Selection/implementation of measures and systems and replication	9.5	Solar energy technologies and EE measures Investment Plan.
4. EE standards/norms	10	Guidelines and EE Standards and norms.
5. Dissemination activities	3	Design of dissemination campaign.
6. Monitoring/Evaluation	3	Final evaluation of this initiative.

D. Procurement

4.4 The procurement and contracting for this program will be carried out in accordance with the Policies for Procurement of Goods and Works financed by the IDB (GN-2349-7) and the Policies for Selection and Contracting of Consultants Financed by the IDB (GN-2350-7).

4.5 The procurement process shall take into account the particularities of the JCF that establishes, among other conditions, the nationality of the consulting firms and the participation of local consultants (partially tied).

V. MONITORING AND EVALUATION

A. Monitoring

5.1 CID/CME with support from the project team and INE/ENE will provide continuous monitoring of this operation and will supervise the quality of the outcomes by providing feedback to the hired consultants as the draft and final products are delivered.

B. Technical and basic responsibility

5.2 Within the IDB, INE/ENE, with support from CID/CME and the project team, will oversee the work to be performed by the consultants contracted in order to ensure that all activities are conducted within the timeframe agreed. IDB will be responsible for processing the payments for the work carried out by the consultants, while CONAE and BC will be for presenting to the IDB progress reports and/or other information deemed necessary for the successful execution of this operation.

5.3 Taking into consideration the project nature of this proposed initiative, it will be important to conduct close monitoring during execution to ensure timely compliance of all the activities. CONAE, BC and BID will put in place a project technical group in charge to review the technical information produced by the consultants. This group will help be part of the program and will give suggestions to increase its performance. Equally important, BC, CONAE and the IDB will disseminate the work conducted in this TC, through seminars and/or workshops in Mexico.

C. Progress and final reports

5.4 The Project Team will follow consultants' work closely and supervise drafts and final studies to assess their relevance and applicability to the development of future projects in other Mexican States.

D. Description of proposed evaluations

5.5 As part of Component 6 (Monitoring and Evaluation) independent consultants will prepare a final evaluation of this initiative for the energy authorities and commissions to verify the benefits and costs of RE and EE measures implemented.

VI. PROGRAM BENEFITS AND RISKS

A. Program benefits and developmental impact

6.1 Expected Result. This TC will support: (i) development of activities related to EE standards and norms, attracting future investments in RE and EE projects in several Mexican States; and (ii) provision of RE and EE technology to lower income residences connected to the electric grid system.

6.2 In terms of impact, the Project aims to contribute to improve the knowledge on the operation and utilization of RE systems connected to the grid, as well as to contribute to economic growth and improved living conditions in the beneficiaries' communities.

B. Target Beneficiaries

6.3 The BC, its lower income population, and CONAE.

C. Risks

6.4 Special issues for analysis should be identified, beyond those that are common to most projects, including: demand, value added, institutional and financial sustainability, capacity to execute the program, ability to monitor and evaluate the program, overall dimension, ownership, if a need for phasing components/activities, and any special execution arrangements (e.g., if there is a need of a new law, decree, multi-agency participation).

6.5 No major issues are expected for the TC, except the timely execution of all activities contemplated in this initiative and availability of future investments to expand the initial pilot project. Given the firm commitment of federal, state and even potential users will offset this potential risk.

6.6 Community involvement is a key issue for the success of this initiative including its replication attracting new investments. Therefore, specific tasks to carry out surveys and consultations with potential users and Non-Governmental Organizations (NGOs) interested in clean energy use will be developed in this operation to mitigate the risks of low acceptance of new technologies such as the ones proposed. Dialogues with potential investors and developers will also be carried out to minimize risks of not attaining project replication.

VII. ENVIRONMENTAL AND SOCIAL REVIEW

A. Reviewed by ESR on 07/28/2008:

7.1 As specified under the Environmental and Social Review (ESR) procedures this operation has been cleared by ESR secretariat. This TC was classified with "C," no environmental assessment studies or consultations are required for this Category.

B. Measures taken to avoid negative social and environmental impacts

7.2 The strategy considered in advance, possible measures to promote environmental and social protection, as well as to avoid and mitigate any negative social or environmental impacts that the proposed innovations may imply once specific projects are planned and developed for implementation.

VIII. APPROVAL

Signed Original	09/03/2008
Leandro Alves	Date
Chief	
INE/ENE	