

Project Name Mexico-Offgrid Rural Electrification (@)

Region Latin America and Caribbean Region

Sector Energy

Project ID Number MXPE64848
MXGE68390

Borrower(s) Government of Mexico

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Environment Category C

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Country and Sector Background: Mexico's national electrification rate is high by international standards, with about 95% of the population having electricity connection in 1996. However, in absolute terms, the remaining unelectrified segment still comprises over 500,000 households and about 80% of these are in rural areas. In offgrid areas, the unserved population is generally composed of marginal groups that have received relatively fewer benefits from government investment in infrastructure and other services. Providing access to even basic electricity services can make dramatic changes in the lives of these people that, as a rule, are relatively poor to extremely poor, and in many cases live in areas that are geographically remote and have difficult terrain.

While the GOM is targeting an electrification rate of 97% by 2000, the sharp cuts in the budget of the Comision Federal de Electricidad (CFE) this year and next cast doubt on the achievement of this goal. In any case, any new connections to be made under the program are likely to be in areas close to the grid. It is abundantly clear that new approaches and new actors are needed to address the problem of providing electricity services to poor people in areas remote from the grid.

Project Objectives: The development objective of the pilot project and its future replications is the improvement of the quality of life of people in remote rural areas through improved access to modern energy. To help achieve this goal, the specific activity proposed is the design and pilot implementation of an approach to the electrification of off-grid areas of Mexico,

featuring a practical public/private partnership that maximizes the participation of the private sector, extends the reach of available public resources for improving social welfare, utilizes appropriate technologies and has the potential for replication in all parts of the country. However, the specific purpose of the proposed LIL is not electrification coverage per se but to test and refine delivery models for offgrid electrification, thus significantly reducing the risks of future large-scale operations.

The pilot project also has the global objective of testing mechanisms to remove market barriers to the wider adoption of RETs in offgrid electrification, thus eventually contributing to global reduction of greenhouse gas (GHG) emissions in energy production and mitigating climate change.

Project Description: The pilot projects will be undertaken in 3-4 poor sites in two states--Chihuahua and Quintana Roo. Each pilot site would consist of several communities with a mix of end-use applications and of a total size sufficient to develop a business for energy provision. The power could come from 5-30 kW diesel, wind or hybrid systems supplying power to consumers connected in a minigrid or from 50- 800 W individual solar installations. Public service centers would include schools, clinics or similar community centers. Productive applications would vary with the site but could include uses that require small power, such as aeration and pumping for fish farms or lighting for small ecotourist hotels in the mountains. Up to 8,000 households, 200 public centers and 200 productive users would benefit. The exact configuration, system requirements and number of installations for each of the market segments will be determined after a detailed survey of power demand, resources availability and socioeconomic profile of the selected pilot sites.

The mechanisms for private sector participation will be determined after analysis of the specific conditions in the chosen sites (household density, income distribution, presence of private operators, etc). The mechanisms could range from simple independent dealerships marketing equipment with financing, to franchises, rural ESCOs and concessions that operate on fee-for-service basis. An important project component is technical assistance in developing business plans, training, market characterization studies, educational and promotional campaigns, and other activities designed to reduce market barriers to the adoption of alternative technologies. For productive applications, the project will assist in pipeline-filling activities, feasibility analysis and financing of demonstration systems.

Project Financing: The financial requirements for the above-mentioned project is estimated to be about \$9-11 million, including the cost of technical assistance activities for reducing market barriers to the adoption of renewable energy technologies. The actual cost sharing among participants will

depend on the service delivery mechanism that is finally chosen.

| Sources of Funds | US \$million |
|------------------------------|--------------|
| World Bank Loan | 5.0 |
| GEF Grant | 1.0 |
| Local Public/Private Sources | 3-5 |
| Total Project Cost | 9-11 |

Project Implementation

The Secretariat of Energy will be in charge of implementing and coordinating the overall project and will receive policy and technical advice from a Steering Committee composed of representatives of the Comision Nacional de Energia (CONAE), Comision Federal de Electricidad (CFE) and the Instituto de Investigaciones Electricas (IIE). Execution of the pilot project in the field will be the responsibility of the State Governments of Chihuahua and Quintana Roo. Each State Government will organize a subproject management unit (SMU) under a suitable state agency, which will do the day-to-day tasks. The SMU will have representations from the state's secretariats of municipal development, rural development and other relevant state entities. Depending on which mode of private-sector implemented approach is taken, the actual installation of equipment, operation and maintenance, and collection of payments from consumers, will be done by the dealerships or fee-for-service companies that are selected.

The borrower of the loan would be the Government of Mexico. NAFINSA would administer the loan proceeds and would transmit to intermediaries in Chihuahua (FIDEAPECH) and Quintana Roo (to be determined) as needed. The Secretariat of Energy is considering providing 25-30% of the loan amount to the States as a grant; the rest would be recovered from the business operations. Other potential sources of subsidy funds would be Ramo 33 social funds and other funds from state and municipal government programs. The balance of investment requirements would be obtained from user downpayments, equity contribution of private owners of productive applications, and investment capital from vendors/service providers.

Project Sustainability

Whatever mechanisms are eventually chosen during preparation of the pilot subprojects, they are expected to be commercially sustainable because cost recovery and profitability for the private implementers will be incorporated into the project design. Depending on the income levels of the various market segment in each pilot site and the number of very poor households that the GOM wants to reach, some subsidy may be required. The subsidy mechanism will be designed to be well-targeted, transparent, and non-distortionary. In all cases, subsidy will be one-time support for capital investments. At the minimum, all customers are expected to be able to pay operating and maintenance costs. This assures that the individual pilot subprojects could be sustained commercially

even if the planned eventual replications are delayed or not carried out. The key to maximizing chances of project sustainability is to be able to define market characteristics in the subproject areas to a level of detail that will permit a fairly accurate assessment of the cash flows of the potential operation, and hence enable interested private companies to fully manage the risks. Such market definition studies will be financed by GEF grants and their results disseminated to all interested private participants.

Program Objective Category: Environmentally Sustainable Development, and Economic Management.

Poverty Category: This project is a Poverty-Targeted Intervention.

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Note: This is information on an involving project. Certain components may not be necessarily included in the final project.

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