

**INTEGRATED SAFEGUARDS DATASHEET
APPRAISAL STAGE**

I. Basic Information

Date prepared/updated: 10/05/2006

Report No.: AC2532

1. Basic Project Data

Country: Mexico	Project ID: P066426	
Project Name: Hybrid Solar Thermal Power Plant		
Task Team Leader: Gabriela Elizondo Azuela		
GEF Focal Area: Climate change	Global Supplemental ID:	
Estimated Appraisal Date: June 14, 2006	Estimated Board Date: October 5, 2006	
Managing Unit: LCSFE	Lending Instrument: Specific Investment Loan	
Sector: Renewable energy (80%);Power (20%)		
Theme: Pollution management and environmental health (P);Infrastructure services for private sector development (P);Climate change (S)		
IBRD Amount (US\$m.):	0.00	
IDA Amount (US\$m.):	0.00	
GEF Amount (US\$m.):	49.35	
PCF Amount (US\$m.):	0.00	
Other financing amounts by source:		
	BORROWER/RECIPIENT	0.00
	<u>FOREIGN PRIVATE COMMERCIAL SOURCES (UNIDENTIFIED)</u>	<u>0.00</u>
		0.00
Environmental Category: B - Partial Assessment		
Simplified Processing	Simple <input type="checkbox"/>	Repeater <input type="checkbox"/>
Is this project processed under OP 8.50 (Emergency Recovery)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

2. Project Objectives

The project development objective is to demonstrate and encourage replication of ISCCS power generation technology in Mexico and elsewhere, thereby contributing to the reduction of global GHG emissions.

Key performance indicators associated with the project development objective include:

- Total electricity generated from the solar thermal hybrid project (GWh/year)
- Solar output as a percentage of total energy produced by the hybrid plant (GWh/year)

3. Project Description

The design, construction and operation of the proposed Integrated Solar Combined Cycle System (ISCCS) include two components:

Component 1. Design and construction of a 31 MW (net) solar field: the solar collector field consists of a large field of single-axis tracking parabolic trough solar collectors.

Component 2. Design and, construction of a 535 MW (net) gas based thermal plant: the plant is based on a standard configuration that includes two industrial frame combustion turbines each associated with a heat recovery steam generator (HRSG) and a steam turbine.

4. Project Location and salient physical characteristics relevant to the safeguard analysis

The region surrounding the project site has the characteristics of a desert, with very low precipitation, and a high incidence of solar radiation. Vegetation is composed mainly of desert bushes. This region has been significantly affected by human intervention. The municipality of Agua Prieta, located approximately 6 kilometers east of the project site, has a population of almost 64,000 inhabitants. Utilities (water, electricity, sewage) cover 100% of the population in the Agua Prieta municipality. The city has been growing slowly towards the south, where most of the industries are located. Though some small scale agricultural production exists, the main source of income for the region comes from industrial activities, mainly manufacture. The Naco-Nogales combined cycle gas power plant is 7 kilometers south-east. Oxidating lagoons for the water treatment plant for the city can be found east of the site, in the outskirts of the urban area. It is important to note that these lagoons already exist to service the municipality of Agua Prieta.

Due to the low availability of water in the region, an air cooled condenser will be used in the proposed project. The water supply will be gray water from the Agua Prieta municipal sewage system (oxidation lagoons mentioned before). The gray water will be processed to produce boiler quality makeup water for the power plant operation as well as suitable water for cleaning of the solar trough components. The wastewater treatment plant to be located inside the ISCCS Agua Prieta installation will be a small modular plant and no social or environmental impacts are expected from its operation.

Other industries such as quarries and assembly plants (maquiladoras) can be found in the region.

The project site is located far away from any sort of protected or environmentally sensitive areas: the closest federally protected area is approximately 12 kms away, the closest priority protection area is about 13 kms away, and the closest priority area for the protection of birds is approximately 200 kms away.

Additionally, the project location is sufficiently far away from the urban area (City of Agua Prieta) so that no potential socio-economic or land use conflicts are expected. The land where the project will be installed belongs to one legal private owner, and currently it does not have any productive or social use. The owner is willing to sell his property to CFE, and in accordance with the Mexican law, the value of the property will be appraised based on its commercial value. Moreover, the project is already included in the Municipal Development Plan and it will not create any conflict with other future development plans and/or proposed land uses.

It is important to note that the GEF resources will not be used the purchase of land. CFE will buy the land required for the ISCCS to a private owner as described above. The land is a private parcel, with no houses or any other sort of social or economic activity.

The environmental and social impacts associated with the Agua Prieta II Integrated Solar Combined Cycle System (ISCCS) project are expected to be minimal:

- As for environmental impacts, the type of intervention and the physical characteristics of the area where it will be located (see the preceding paragraphs) make sizeable environmental impacts highly unlikely. Instead, this project will help meet growing demand for electricity in the region, and the operation of the solar component will have positive environmental impacts due to the reduction of CO2 emissions.

- As for social impacts, a social screening was conducted during the preparation of the project. The result of the screening showed that the construction and operation of the project will not cause any adverse social impacts. Rather, the project will generate 660 jobs during the pre-construction and construction phases. Of these, 600 will be provided to non-qualified labor. CFE expects these positions to be filled with local people. The more specialized work force is generally hired from the region or State.

5. Environmental and Social Safeguards Specialists

- Mr Juan D. Quintero (EASEN)
- Ms Elena Correa (LCSEO)
- Mr Hernan M. Gonzalez Figueroa (LCSEN)

6. Safeguard Policies Triggered	Yes	No
Environmental Assessment (OP/BP 4.01)	X	
Natural Habitats (OP/BP 4.04)		X
Forests (OP/BP 4.36)		X
Pest Management (OP 4.09)		X
Physical Cultural Resources (OP/BP 4.11)		X
Indigenous Peoples (OP/BP 4.10)		X
Involuntary Resettlement (OP/BP 4.12)		X
Safety of Dams (OP/BP 4.37)		X
Projects on International Waterways (OP/BP 7.50)		X
Projects in Disputed Areas (OP/BP 7.60)		X

II. Key Safeguard Policy Issues and Their Management

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts: There are no potential large scale, significant or irreversible impacts associated to this project. The construction of the proposed project will not require any forced displacement of people in the area, as the selected sites are located away from populated areas. The main environmental impacts expected from this project and the proposed mitigation options are summarized in the table below:

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

There are no expected negative impacts due to anticipated future activities in the project area. The project will contribute to meet the increasing demand for electricity in the region and may help increase socioeconomic welfare of the inhabitants. The benefits to the environment include the avoidance of emissions of green houses associated with fossil fuel-based thermo-electric generation, including CO₂, SO₂, NO_x, methane, suspended particles, etc, which have local and global repercussions.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

Not Applicable

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

Environmental:

The only safeguard triggered is Environmental Assessment (4.01). CFE has prepared an EA acceptable to the Bank and to the national environmental authorities.

The CFE is the entity in charge of developing the Environmental Assessment, including the Environmental Management Plan. CFE has demonstrated its capacity to conduct this type of assessments which are generally sub-contracted to third independent parties.

Social:

The project does not trigger any social safeguard policy. However, during the construction and operation of the project CFE will implement the following community activities:

- Launch an energy efficiency program to lower household expenditure in electricity bills (e.g. incentives to replace old inefficient refrigerators and other).

- Implement a communication program during the construction and operation stages to inform local authorities, communities and different stakeholders about the project

- Due to the nature of a solar thermal hybrid facility, it is possible that the plant will attract international and national attention. CFE will explore the possibility to engage the community in a program for information and dissemination (e.g. schools, universities)

- The possibility to develop a botanical garden within the installations of the solar thermal hybrid plant is being explored. This will require the participation of local universities and local work force.

CFE has conducted this type of activities in many of its previous facilities and its capacity to manage a social plan has been widely demonstrated.

CFE is highly qualified to address the identified environmental impacts and manage the social and environmental aspects of the project including all the activities described in the Environmental Management Plan (EMP). The project will be supervised by the Social Development and Environmental Offices at the central level in CFE and by an environmental specialist at the site.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people. A couple of preliminary meetings between the CFE and the authorities of the Municipality of Agua Prieta took place in the period September 2004 and November 2005 at the offices of the Municipal President, Carlos Alvarez Samaniego. The participants of these meetings included only government authorities: representatives of the municipal planning commission (COPLADEMUN), the Municipal President and CFE representatives including the Project Manager and the Project Environmental Engineer.

During these meetings CFE gave a presentation on the characteristics of the Agua Prieta II plant to government authorities and specifically requested information on the availability of municipal grey water. During these meetings, the representatives of COPLADEMUN explained the details of the Municipal Plan de Ordenamiento Territorial and confirmed that the Agua Prieta II plant was welcomed and that indeed grey water was available to supply the needs for operation and maintenance requested by CFE.

A formal consultation process was subsequently organized as described in detailed below.

Dates and Venues

The project consultation process included the following event:

The general project consultation took place on May 4th, 2006 at the Auditorio Deportivo Agua Prieta, at the Municipality of Agua Prieta, Sonora. The event was organized by the social communications unit of the CFE. Prior to the event, CFE extended a public invitation through posters and the local press and distributed a data sheet in the form of leaflets with information on the general characteristics of the project. The information was placed at convenient locations (Instituto Tecnológico, Offices of the Municipal President and other government Institutions). Prior to the event, CFE had disclosed the EA of the project at its official website .

The World Bank was also invited to participate in the consultation event however the task team could not to attend.

Participants

The participants included the municipal president, representatives of the COPLADEMUN, Director of Economic Development Municipality of Agua Prieta,

about 86 people - including the civil society, students and professors of the Instituto Tecnológico- a representative of the El Paso Natural Gas, and the local press (with the coverage of three different newspapers: Expresso, El Clarin and El Diario). Pictures of the consultation process are shown in the Figures below.

The consultation process consisted of presentation by different CFE representatives on the characteristics of the Agua Prieta Project including the technical details and the identified or expected environmental impacts including the mitigation measures and characteristics of various programs to be implemented during the different phases of the project (EMP). The CFE presentation followed a session of questions and answers of which a summary of results is presented below.

Results and Recommendations of the Consultation Process

The results of the consultation are summarized below.

Investment amount: the question was focused on what percentage of the total investment would be indirectly captured by the Municipality. CFE explained that the Municipality will benefit by the construction and operation of the Agua Prieta II Plant in the following ways: a) employment generation, b) purchase by CFE of the municipal wastewater (with income generation of about 65,000 USD per year to the Municipality) and c) and number of initiatives that will promote education in energy efficiency at the household level and others contemplated in the EMP.

Impacts on the costs of regional electric tariffs: the community (as all the other communities or urban centers located at the North of Mexico where the extreme high temperatures signify a high electricity bill) wanted to know how the construction and operation of the Agua Prieta II plant will impact the regional electricity tariff level. CFE explained that the electricity tariff including the subsidy is defined by Secretaria de Hacienda y Credito Publica (SHCP) and not by CFE. CFE also explained that the capacity addition of Agua Prieta II to the interconnected system will indeed have effects on the system as marginal cost (SMC) but further explained that SHCP defines the tariff levels based on a number of different considerations, which escape the decision making and authority limits of the CFE. In addition, CFE explained that they can contemplate activities to educate people on how to save energy and lower their electricity bill.

Implications regarding the promotion of tourism: the participants wanted to know if the Agua Prieta II project, being an innovative technology development plant, would attract tourism and the visit of schools, academic institutions, research centers and international visitors. CFE explained that it is indeed possible that the plant will attract visitors but also said it was difficult to predict the flow and or frequency of these visits.

Implications regarding the development of a local airport. As the Municipality is planning the construction of a local small one lane airport, they also wanted to know how the Agua Prieta II plant can affect this development (positively or negatively). CFE explained that it is difficult to predict the increase of tourism for visits to the Agua Prieta

II facility. CFE also explained that the operation of the solar field would not affect this future initiative in a negative way.

The installation of future solar field or integrated plants and natural gas availability in the area. The Director of Economic Development of the Municipality of Agua Prieta wanted to know if the Agua Prieta II project can be replicated in the area and in general what is the availability of natural gas for future projects in the area. CFE explained that if the performance of the plant is good, it is possible that a similar hybrid plant is installed in the future in Mexico, although CFE at this stage does not know when, the scale or even the location.

With regards to the availability of natural gas CFE explained that both the Naco-Nogales plant (operated by Union Fenosa some kms away from Agua Prieta) and the Agua Prieta II Plant, will use imported natural gas from USA. The capacity of the existent natural gas pipeline is sufficient to supply these two plants during their life cycles.

Periods of construction and operation. CFE explained in detailed the program of activities. Employment Generation. CFE clarified that considering the experience with the Naco-Nogales plant (located some kms away from the municipality of Agua Prieta), the plant is expecting to hire up to 1,500 local workers during the construction phase, of which 450 are expected to be allocated to people from the Agua Prieta Municipality. The local representative of the electricity sector union (CFE-SUTERM) confirmed they will advertise the types of position available in the local media soon after the bidding process is completed (November 2006).

Type and origin of the technology, environmental performance. There were some technical questions from the students and professors of the Instituto Tecnológico de Agua Prieta (ITAP) regarding the type of technology, the country of origin, and the NO_x emissions associated with the installation. The CFEs technical team answer all technical questions and clarified that the Agua Prieta II plant will comply with the Mexican standards (NOMs) and that the maximum allowable limits for NO_x emissions specified in the bidding documents are even lower than those specified in the corresponding NOM.

Greenhouse Gas Emissions. Students of the ITAP wanted to know if the project will increase or reduce GHGs at the global and local levels and impacts of the plant on the local temperature. CFE explained that the solar field will contribute to reduction of X and that reductions in GHGs have an impact at a global level. CFE also explained that the temperature at the local level will not be affected.

Reasons why the plant will use wastewater from the Municipality. CFE explained that given the lack of water availability in the zone, the Agua Prieta II plant will use grey water from the Municipality in minimum quantities for general operation and maintenance activities including the cleaning of the solar mirrors. The grey water will be treated in situ in a small modular plant.

In general terms CFE reported a generalized acceptance to the project from the participants to the consultation event. The next the local press (Expresso, El Clarin and El Diario) issued informative notes on the project and a brief summary of what was said during the consultation. Two of the articles were positive about the operation of the plant, a third article showed skepticism regarding the benefits to the community.

Decisions

At the end of the session, CFE decided to formalize the implementation of programs and activities involving the community. The following programs were added to the second version of the EMP presented to the Bank before appraisal activities:

- Program to Support Community Activities: which includes activities associated to employment generation (bolsa de trabajo), education and civil protection. The activities are detailed in the EMP, included in the project files.

- Program to Support Municipal Initiatives: CFE offered a review of the Municipal Plan de Ordenamiento Territorial soon after the completion of the bidding process to determine whether the project can contribute to the Plan de Ordenamiento Territorial or Municipal Development Plan in any significant way.

Feedback Mechanisms and Disclosure

At the end of the event, the CFEs social communications unit distributed among participants a CFE press bulletin with information about the plant and CFE contact information for future questions and concerns regarding the project. CFE has also a local office in the area, and people were encouraged to contact the local representative for additional questions or concerns regarding the Agua Prieta II initiative.

The EA is made publicly available by the Ministry of Environment (SEMARNAT) and through the World Bank's Infoshop. This assessment has already been disclosed by CFE at its official website, www.cfe.gob.mx since July 2006.

B. Disclosure Requirements Date

Environmental Assessment/Audit/Management Plan/Other:

Date of receipt by the Bank	06/25/2006
Date of "in-country" disclosure	07/10/2006
Date of submission to InfoShop	10/05/2006
For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors	

*** If the project triggers the Pest Management and/or Physical Cultural Resources, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.**

If in-country disclosure of any of the above documents is not expected, please explain why:

C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)

OP/BP/GP 4.01 - Environment Assessment

Does the project require a stand-alone EA (including EMP) report?	Yes
If yes, then did the Regional Environment Unit or Sector Manager (SM) review and approve the EA report?	N/A
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?	N/A

The World Bank Policy on Disclosure of Information

Have relevant safeguard policies documents been sent to the World Bank's Infoshop?	N/A
Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?	N/A

All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?

Have costs related to safeguard policy measures been included in the project cost?

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?

D. Approvals

<i>Signed and submitted by:</i>	<i>Name</i>	<i>Date</i>
Task Team Leader:	Ms Gabriela Elizondo	10/05/2006
Environmental Specialist:	Mr Juan D. Quintero	
Social Development Specialist	Ms Elena Correa	
Additional Environmental and/or Social Development Specialist(s):	Mr Hernan M. Gonzalez Figueroa	
<i>Approved by:</i>		
Regional Safeguards Coordinator:	Mr Reidar Kvam	
Comments:		
Sector Manager:	Ms Susan G. Goldmark	10/05/2006
Comments:		