

Environmental and Social Review Summary
Poços de Caldas Transmissora de Energia (PCTE) Ltda.
500 kV Transmission Line

This Environmental and Social Review Summary (ESRS) is prepared by MIGA staff and disclosed in advance of the MIGA Board consideration of the proposed issuance of a Contract of Guarantee. Its purpose is to enhance the transparency of MIGA's activities. This document should not be construed as presuming the outcome of the decision by the MIGA Board of Directors. Board dates are estimates only.

Any documentation which is attached to this ESRS has been prepared by the project sponsor, and authorization has been given for public release. MIGA has reviewed the attached documentation as provided by the applicant, and considers it of adequate quality to be released to the public, but does not endorse the content.

Country:	Brazil
Sector:	Infrastructure
Project Enterprise:	Poços de Caldas Transmissora de Energia Ltda.
Environmental Category:	B
Date ESRS Disclosed:	October 6, 2009
Status:	Due Diligence

A. Project Description

The project is designed to strengthen the national intertie system by increasing the supply of electricity in the southeast particularly in the states of São Paulo and Minas Gerais. The project consists of the construction and operation of a 500-kV transmission line (303 km) through substations at Ribeirão Preto – Estreito – Jaguara and Ribeirão Preto – Poços de Caldas and a new substation at Ribeirão Preto. The purpose of these transmission lines is to connect the existing substation in Jaguara, in the municipality of Rifaina, with substations at Estreito and Ribeirão Preto and linking the existing substations at Ribeirão Preto with Poços de Caldas. The transmission line passes through 19 municipalities, 4 in Minas Gerais and 15 in São Paulo. The first segment of the new transmission line is about 166 km (substations Ribeirão Preto – Estreito – Jaguara) and the second segment is about 137 km (substations Ribeirão Preto – Poços de Caldas). The project also constructed a new substation at Ribeirão Preto. The proposed transmission line mainly crosses flat land with agricultural development (mainly sugar cane, citrus and coffee plantations). The stretch crosses some areas of native vegetation where impacts arising from construction and operation of the line and substation will not significantly alter the current use and occupation of the land. The right-of-way (ROW) is about 60m in width. In the northern segment, the ROW crosses land predominantly occupied by human

settlements, pasture and agricultural land. The stretch along Estreito and Ribeirão Preto is mostly Cerrado vegetation, but with mixed forest cover and park land. The transformers at Ribeirão Preto substation have been in operation since May 2009. The complete project became operational in July 2009.

B. Environmental and Social Categorization

The project is a Category B under MIGA's environmental and social review procedures because the impacts are site-specific, limited in number, and mitigation measures are readily identifiable. The key environmental and social issues are: construction-related impacts; occupational health and safety; modification of natural habitat; land acquisition and loss of agricultural production (in particular during the construction phase).

C. Applicable Standards

Based on current information the following Performance Standards are expected to be applicable:

- PS1: Social and Environmental Assessment and Management System
- PS2: Labor and Working Conditions
- PS3: Pollution Prevention and Abatement
- PS4: Community Health, Safety and Security
- PS5: Land Acquisition and Involuntary Resettlement
- PS6: Biodiversity Conservation and Sustainable Natural Resource Management
- PS8: Cultural Heritage

PS7 (Indigenous Peoples) is not applicable because there are no indigenous peoples affected by the project. Indigenous lands are approximately 200km away from the transmissions lines. Project construction and operation are not expected to have any adverse impacts on indigenous peoples or their lands.

D. Key Documents and Scope of MIGA Review

For this investment, the following documents were reviewed by MIGA:

- Estudo de Impacto Ambiental (EIA), prepared by Biodinamica Rio Engenharia Consultiva Ltda. (June 2007)
- Relatório de Impacto Ambiental (RIMA), prepared by Biodinamica Rio Engenharia Consultiva Ltda. (June 2007)
- Licença Prévia (LP), issued by IBAMA (March 20, 2008)
- Licença de Instalação (LI), issued by IBAMA (July 8, 2008)

MIGA's due diligence also involves discussions and e-mail exchanges with the insurance broker on land acquisition and the investor's labor practices.

E. Key Issues and Mitigation

PS1: Social and Environmental Assessment and Management Systems

According to Brazilian law, an EIA and a RIMA must be prepared for any transmission line with capacity greater than 230 kV. The EIA is a detailed environmental assessment that is submitted to public authorities for review and approval, whereas the RIMA is a summary version of the EIA that is written in simpler language and expressly intended for public information, review, and comment. The EIA and RIMA of this project have adequately identified likely impacts and risks in the project's area of influence. As currently proposed and designed, the project does not involve either associated facilities or third party obligations for significant project components or for environmental aspects of the project. All licenses specify environmental and social actions that must be implemented as conditions of the license. License conditions are drawn from recommendations identified in the EIA and RIMA, issues and concerns identified by public comment on the RIMA, and requirements identified by local, state, or national authorities.

The Environmental and Social Action Plan as presented in the EIA and RIMA includes 10 programs, all of which are required to be developed and implemented by the enabling legislation for the privatization and awarding of concessions. All are commensurate with risks associated with construction and operation of the project. The overall environmental management system consists of programs divided into the following three phases:

- Pre-construction phase - EMP consists of three programs: ROW establishment program; program for compensation (for land/houses and livelihood impacts); social communications program;
- Construction phase consists of seven programs, including emergency plan, construction supervision; workers' health and safety; environmental compensation; monitoring. The LO includes a requirement to continue the monitoring of flora and fauna in the right-of-way for 2 years, and specifies the form of environmental compensation to be paid as required by law. These conditions and the two management programs for operations (Program of Environmental Management of Operations; Program of Worker Health & Occupational Safety in Operations) form the key environmental management activities during operations.
- Operational phase consists of the continuation of three of the above programs: Program of Environmental Compensation Program, Program of Monitoring Fauna; and Emergency Response Plan.

Corporate Capacity and Commitment. The investors have already built and operated similar high-tensions transmission lines under concession in Brazil. MIGA has insured several of these investments, and has monitored implementation of some of them during construction and operations.

PS2: Labor and Working Conditions

The labor law of Brazil incorporates the core principles of ILO. The investor for PCTE, Cobra Instalaciones y Servicios (the project enterprise) has constructed and is operating several transmission lines in Brazil and complies with the local labor law. The project enterprise is committed to applying the requirements of PS2 and the national law on working conditions, working relations, grievance mechanisms and health and safety procedures. The project enterprise also ensures that relevant requirements of PS2 were applied to all employees (contractor and subcontractor). Around 800 employees are required for operation and maintenance of the transmission lines and associated facilities. Approximately 600 employees were hired during the peak of construction works with about 60% specialized personnel coming from other regions and 40% local hires. Out of the 800 employees, 600 were directly contracted by the investor and 200 were subcontractor's employees.

The investor also commits to the following principles:

- a) Safety programs and requirements - all employees are provided with personal protection equipment and will attend monthly safety courses. These training courses aim to train all employees in the use of all tools, machinery and pieces of equipment used for the construction of transmission lines and substations. Furthermore, compliance with the investor's own safety regulations and Brazilian norms are supervised and enforced by the investor's safety inspectors who permanently deployed on site. The number of inspectors for a given number of employees is regulated by Brazilian regulations.
- b) Health programs and medical facilities - the investor permanently deploys qualified doctors to the site. Fully equipped ambulances, medical equipment and first aid kits are available. Doctors undertake annual check-ups of all employees, supervise sanitary conditions of camps and installations and organize preventive health programs.

The Ministry of Labor, through the Secretariat of Labor Inspection and the departments of Labor Control and of Worker Health and Safety, is charged with guiding, controlling and supervising the activities connected with labor and occupational health and safety. The project is also supervised by the individual states and the regional labor authorities.

PS3: Pollution Prevention and Abatement

The primary pollution issues associated with the project are: potential erosion from localized areas of exposed soils that result from installation of towers and substations, and management of construction wastes. The standard practice of the investor is not to use herbicides for ROW clearing or maintenance. The removal of vegetation, earthworks may accelerate erosion processes and changes to watercourses. The Environmental and Social Action Plan includes a requirement to implement best practice for erosion control and to monitor construction areas regularly until the soils have been revegetated and stabilized. The majority of wastes generated by the project are construction-related

wastes, which are managed and disposed of in a manner consistent with recognized best practices. Recycling of materials is implemented to the extent practical. The investor confirmed that these practices were followed for the construction of this project. The investor's record for similar projects in Brazil has demonstrated responsible management for pollution prevention and abatement.

PS4: Community Health and Safety

The impacts identified for public health included: (i) risk of increased traffic and industrial accidents; (ii) electromagnetic fields; (iii) increase in demand for health infrastructure during construction; and (iv) increased risk of communicable diseases during construction.

Movements of heavy construction vehicles and trucks are/were closely supervised and controlled to mitigate traffic accidents. The risk of industrial accidents during both construction and operation of the transmission lines were mitigated by programs on environmental training for contractor personnel and on worker safety and occupational health during construction and operation phases.

As regard to effects induced by electromagnetic fields, the studies made to date have not discovered any conclusive evidence linking such fields to health problems. The internationally accepted measures based on the "prudential avoidance" concept include observance of a safe distance from populated areas together with control of exposure levels. These are ensured by establishment of the right-of-way width of 70m.

With regard to risks associated with the influx of workers including increased demand for local infrastructure facilities, especially for health and housing, the investor's employs a standard approach. The investor assumes full responsibility by providing accommodation to all employees. For those sections of the transmission line within a range of 50km from urban centers, the investor rents existing housing facilities and provide transport from and to the work site. For those sections of the transmission line located in remote areas, the investor sets up camp infrastructure in strict compliance with the Brazilian laws, particularly with regard to sanitation. This also includes investor's responsibility provide catering and food supplies to all employees. The entire PCTE's transmission line route is within close vicinity of urban centers and densely populated areas, therefore camps were not established. Regarding the risk of communicable diseases during the construction phase, preventative health programs were included in workers' health and safety programs.

Substations close to human settlements like the Poços de Caldas substation is an existing installation and the property of Furnas Centrais Elétricas. PCTE's project consists of expanding the capacity of this installation but within the existing area. Security, access and control of the area are the responsibility of Furnas. The Ribeirão Preto substation is 10km from the city of Ribeirão Preto. It is located adjacent to an existing substation (property of CTEEP) and to a Federal Government prison facility. The PCTE substation area is fenced off, well illuminated with restricted access and guarded. Security personnel at project facilities including substations do not use firearms.

There are three airfields in the project area. The aerodrome's APLITEC serves to spray

sugarcane crops in the region of Ribeirão Preto. The airfield of Fazenda Santa Maria provides agricultural spray and a means to gain access to surrounding farms. The activities of the aerodrome / airport of Sacramento are not currently operational, but may be reactivated. All airfields serve small aircrafts. Detailed studies for testing the level of interference with the layout of the 500kV LTs Ribeirão Preto – Estreito – Jaguara and Ribeirão Preto-de Caldas were developed and reviewed by the Ministry of Aeronautics / COMAR.

PS5: Land Acquisition and Resettlement

The EIA indicates that the project does not lead to physical resettlement, and no community would be directly crossed by this transmission line. Only in some municipalities the right-of-way is within a range of up to 1.5km from farms, towns, ranches, sites and urban neighborhoods. There are four urban areas located in the city of Poços de Caldas (MG) that are near the proposed line. The land acquisition information presented to MIGA confirms that 441 properties were affected by the transmission line with resettlement necessary. Acquisition and compensation of 336 privately owned properties have been completed. The remaining 139 properties are at various stages of completion. MIGA will require an update on land acquisition and compensation before the guarantee contract is signed for this project.

Previous experience of MIGA with acquisition of right-of-way for utilities projects in Brazil, including other transmission lines built and operated by the investor, has found that the requirements and the procedures in Brazil are consistent with PS5. Community engagement with respect to designation of the right-of-way is discussed above in the context of PS1. Generally between 8% and 10% of all compensation cases are presented in court.

Brazilian law for acquisition, compensation, and expropriation (if necessary) of ROW for utilities identifies a clear process that is required. According to the law, once the project is given permission to conduct topographic surveys for the right-of-way, permission from each landholder must be obtained to enter the property to do the survey. Once on the property, the surveyor prepares a document for that property (and each claimant, if there is more than one on a property) regarding all the impact on crops, trees that need to be cut or trimmed, and improvements (houses, corrals, outbuildings, water tanks, etc.) that might need to be relocated. This also is the opportunity for surveyors, landowners, and occupants to discuss possible relocation of towers, to the extent practical, in a manner that minimizes adverse impacts. This survey is a critical step in the community engagement process. The Environmental and Social Action Plan includes a Social Communication Program that must be implemented during the pre-construction phase and throughout the construction period, and provides landowners and local residents the opportunity to report environmental concerns or safety issues that might arise throughout the construction period.

PS6: Biodiversity Conservation and Natural Resource Management

The project crosses a landscape of highly modified Cerrado habitat highly altered by

human activity resulting in significant reduction in fauna. It is estimated that about 162 ha are occupied by sugar plantations, while the remaining areas of forest cover 54 ha of the indirect area of influence. The stretch between Jaguará – Estreito (mainly in Minas Gerais) is dominated by disturbed Cerrado habitat which are now predominantly pasture and agricultural lands. The stretch between Estreito and Ribeirão Preto is also predominantly Cerrado habitat with some mixed forests.

Riparian forest habitat is generally identified by the Forestry Code as areas for permanent preservation, and will be treated as such by the project even though almost all the riparian forest habitat in the right-of-way is already degraded. The route of the right-of-way was selected, among many factors, to avoid crossing forest fragments greater than 500m in width, which is the distance between adjacent towers. Where required, tower heights were adjusted to minimize the need for trimming of natural vegetation along the right-of-way. The investors have successfully implemented in other projects a construction and cable installation technique that requires only removal of a 5-m wide band of natural vegetation in those areas where the right-of-way may cross remnant patches of trees or shrubs. Care is taken to trim a little above ground level, to allow rapid regeneration of growth from roots and stumps. Thereafter, trimming is carried out by manual means only as needed for security of the transmission line. Along approximately 16km of the right-of-way (approximately 5% of the total length), the right-of-way crosses forested habitat in which long-term vegetation management using manual methods will be required.

The hunting, capture and trade of wildlife are among the main human activities that reduce the natural populations. The opening of new access and removal of vegetation may increase hunting. Birds such as jacupemba and jacuaçu, and the little known bigodinho are most affected by hunting. The investor plans to enhance environmental supervision of works in the region.

With regard to terrestrial fauna, it is likely that some species, especially reptiles, would move to nearby areas. The displacement of venomous snakes in the surrounding areas requires special attention as they may use crops and homes as places of shelter, thereby increasing the risk of accidents. Birds may be disturbed by increased traffic and noise. Due to the siltation of rivers and lakes in the area, aquatic life may be disturbed during the deployment of the transmission lines. This impact is expected to be temporary (only during the deployment of transmission lines).

According to field surveys, the transmission lines cross the following environmental establishments: one Private Reserve of Natural Heritage Federal (RPPN), one State Ecological Station, one State Experimental Station, one Municipal Park and one Municipal Environmental Protection Area. Brazilian law stipulates that at least 0.5% of the cost of an infrastructure project be set aside for the establishment of conservation units (e.g., parks and protected areas).

PS8: Cultural Heritage

Across the transmission lines, only Serra Azul, São Simão and Tambaú (all in São Paulo State), are known to have resources of paleontological, archaeological, or historical interest. These archaeological sites contain stone artifacts. The standard practice for the

project is to have a recognized expert conduct a site survey of each proposed tower location prior to the initiation of construction to determine whether cultural resources are potentially present. Construction crews are trained as part of the Environmental and Social Action Plan to recognize the presence of cultural resources. They are required to stop works and request expert assistance as per the requirements of PS8 when there is a risk of chance finds. In the states of Minas Gerais and São Paulo, there are no Indigenous Lands or in any of the 19 counties crossed by the transmission lines. The closest Indigenous lands are about 200km away from the project area.

F. Social and Environmental Permitting Process and Community Engagement

According to Brazilian law, an EIA and RIMA must be prepared for any transmission line with capacity 230 kV or greater. The Licença Prévia (LP) is a permit to carry out the necessary detailed planning and environmental studies; the Licença de Instalação (LI) is needed to construct the TL; and the Licença de Operação (LO) is needed to operate. Notices of intent to issue all three licenses are published in advance in local and regional newspapers, and in official publications. Public hearings on the issuance of an LP can be requested by interested parties within 45 days of notice of intent to issue an LP. For new power lines and substations, the LP must be requested at the initial stage of planning, before the final path of the ROW (or location of the substation) is decided. The law also requires notice of issuance of the LI to be published for a 30-day period, before it takes effect. For this project IBAMA issued the Preliminary License (LP) on 20 March 2008, the Construction License (LI) on 8 July 2008.

Environmental studies are approved by several institutions in Brazil. Each of the following institutions use the information provided:

- FUNAI (National Indian Foundation)
- IPHAN (National Institute for the Historic and Arctic Protection)
- Fundacao Cultural Palmares (Cultural Foundation Palmares)
- ICMBIO (Institute for the Preservation of Biodiversity “Chico Mendes”)
- SVC (Secretary for the Sanitary Surveillance) if the project touches the “Amazonas”
- Townhalls of each of the municipalities crossed by the transmission lines.

G. Availability of Documentation

The RIMA for this project has been disclosed locally in accordance with Brazilian requirements. MIGA has also disclosed the RIMA on its website along with this Environmental and Social Review Summary.