

## **Environmental and Social Review Summary SMTE 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.*

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|-------------------------|---|
| Country:                | Brazil                                      |
| Sector:                 | Infrastructure                              |
| Project Enterprise:     | Serra da Mesa Transmissora de Energia Ltda. |
| Environmental Category: | B   |
| Date ESRS Disclosed:    | May 21, 2008                                |
| Status:                 | Due Diligence                               |

### **A. Project Description**

The project is designed to strengthen the national intertie system, improving linkage between the Southeast and the North-South III grids. The project consists of a total of 675 km of 500-kV transmission line. The new transmission line terminates on the northern end at the existing Serra da Mesa hydropower plant on Rio Tocantins in the State of Goiás, and on the southern end at the existing Emborcação hydropower plant on the Rio Paranaíba. The project also will construct two new substations, one about 15 km from the urban area of the Municipality of Luziânia in the State of Goiás, south of the Federal District of Brasília, and the other about 35 km from the urban area of the Municipality of Paracatú in the State of Minas Gerais. The segment of transmission line between Serra da Mesa and the new substation at Luziânia is 312 km in length and travels mostly in a north-south direction, passing through the eastern side of the Federal District and then curving to the southwest to Luziânia. From the new substation at Luziânia, a 65.5 km line will branch off to the northwest to connect to the Samambaia substation in the southwest corner of the Federal District. From Luziânia, the main transmission line will continue for 296.6 km, first to the southeast to connect to the new substation near Paracatú, and then to the southwest to the substation at the Emborcação hydropower project. The right-of-way will be about 70 m in width. In the northern segment, the right-of-way crosses heavily grazed cerrado habitat in terrain dominated by hills and mesas with limited access; the southern segment crosses mostly gently rolling terrain in large mechanized farms of irrigated corn or soya, or in cattle grazing, until reaching fragments of forested habitat in the vicinity of the hydropower project on the Rio Paranaíba.

## **B. Environmental and Social Categorization**

The construction and operation of two new substations and a 500-kV transmission line across a landscape that is predominantly in cattle ranches or large corn and soybean farms 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 issues are: construction-related impacts; occupational health and safety; and modification on natural habitat. The key social issues are: land acquisition and loss of agricultural production (in particular during the construction phase).

## **C. Applicable Standards**

Based on current information 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. The nearest designated indigenous peoples' lands that are designated by the Government of Brazil are more than 10 km from the right-of-way and with no easy access; therefore, there is no reason to expect adverse impacts on the people or their lands from either construction or operations.

## **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 JGP Consultoria e Participações, dated April 2006.
- Relatório de Impacto Ambiental (RIMA), prepared by JGP Consultoria e Participações, dated April 2006.
- Licença Prévia (LP), issued by IBAMA, dated 19 January 2007.
- Licença de Instalação (LI), issued by IBAMA, dated 2 April 2007.
- Licença de Operação (LO), issued by IBAMA, dated 25 February 2008.

MIGA's due diligence also involves discussions and e-mail exchanges with the insurance broker on Brazilian labor law and the project enterprise's implementation of those laws.

## **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 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. The project has received all the necessary environmental licenses needed to construct and operate. 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 16 programs, all of which are required to be developed and implemented by the enabling legislation for the privatization and awarding of concessions. Three of these are programs that were to be implemented during the pre-construction phase and 11 are programs that were to be implemented during the construction phase. Of the 11 construction-phase programs, three are continued into the operational phase (Program of Environmental Compensation in Conservation Units; Program of Conservation of Flora and Fauna; and Emergency Response Plan). The LO includes a requirement to continue for 2 years the monitoring of flora and fauna in the right-of-way, 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.

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 monitoring implementation of some of them during construction and operations. The investors have demonstrated a high capacity and commitment to implement the projects in a manner consistent with the Environmental and Social Action Plan prepared for each one.

Community Engagement, Monitoring, Reporting. 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.

Notices of availability of the RIMA and intent to issue all three licenses are published in advance in local and regional newspapers, and in official publications. Upon public disclosure of availability of the RIMA, interested parties have 45 days in which to request a public hearing. The law also requires notice of issuance of the license to construct (LI) to be published for a 30-day period, before it takes effect. The EIA and RIMA were prepared in April 2006, and the RIMA was disclosed in accordance with the law. The LI was issued on 2 April 2007, and the license to operate (LO) was issued on 25 February 2008.

#### PS2: Labor and Working Conditions

Labor law of Brazil incorporates the core principles of ILO. The investor, Cobra Instalaciones y Servicios, in SMTE (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 apply working conditions, working relations, grievance mechanisms and safety procedures consistent with the requirements of PS2. The project enterprise also ensures that relevant requirements of Performance Standard 2 are/were applied to all non-employee (contracted) workers. Around 35 employees are required for operation and maintenance of the transmission line, and around 1,800 direct and 500 indirect employees were hired during the construction phase.

Ministério de Trabalho (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 controlled by the individual states and the regional labor authorities (“Delegacias”).

#### 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. Herbicides will not be used in ROW clearing or maintenance. The highest risk for erosion during construction is in the hilly terrain and steep slopes in the northern third of the project. The route of the right-of-way has been selected in part to avoid the areas of highest risks for erosion and minimize crossing of

steep slopes. 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 will be managed and disposed of in a manner consistent with recognized best practices. Recycling will be implemented to the extent practical. The investor's record for similar projects in Brazil has demonstrated responsible management for pollution prevention and abatement.

The Environmental and Social Action Plan for the project includes, as required by law: Program for Social Communication; Programs for Worker Occupational Health and Safety, for both construction and operational phases; and an Emergency Response Plan. All are commensurate with risks associated with construction and operation of the project.

PS4: Community Health and Safety

The potential 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 TL were/are mitigated by programs on environmental training for contractor personnel and on worker safety and occupational health during construction and operation phases.

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

As regard to risks associated with the influx of workers including increased demand for local infrastructure facilities, impacts were not high as hiring was spread over the twelve-month duration of the works and some workers who brought their families were housed in three different municipalities (Luziânia, Colinas do Sul, and Catalão), and others were housed in camps set up in the worksites in Colinas do Sul, Luziânia, and Catalão. Regarding the risk of introducing communicable diseases during the construction phase, preventive health programs were included in workers' health and safety programs.

PS5: Land Acquisition and Resettlement

Information presented by the project sponsor as part of 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 adjacent to rural

communities. This is the case with Colinas do Sul, for example, where the transmission line passes close by a small rural settlement called Vila Borba, located about 500 m from the boundary of the Area of Direct Impact (ADI). In the Federal District (DF) the transmission line passes close to various rural communities, such as Tabatinga, Cariru (where the transmission line passes very close to a rural school), Capão Seco, Pipiripau, Rio Preto, Taquara, Lamarão and Vale Verde, while in Luziânia the route runs close to the Surubim and Barreirinho rural communities in the Serra da Mesa 2 – Luziânia branch, Larginha, Capoeira Chata, Salgado and Pamplona in the Luziânia-Emborcação branch, and close to the Americanos and Parque Esmeralda developments in the Luziânia-Samambaia branch. In the municipality of Novo Gama, the transmission line route passes near to the Ponte Grande rural school.

Land acquisition. The transmission line was divided into three segments (parts). The first section: Serra de Mesa – Luziania (312 km) affected 88 properties of which 15 are public property. Acquisition and compensation of the 73 privately owned properties have been completed. Currently there are 7 outstanding cases. The second section: Luziania – Samambaia (65km) lead to acquisition of portions of 83 properties, off which five are public properties and there are 16 outstanding cases where compensation have not been completed either due to court cases, property owners have not been found. The third section: Luziania –Paracatu – Bumborcacao (297 km) affected 51 properties of which 4 owned by public organizations. Compensation of the majority of privately owned properties has been completed. There are 3 outstanding cases as court procedures have not been completed.

Impact on agricultural production. About 44% of the areas affected by the project consist of cultivated land. Primarily for safety reasons, the route of the transmission line avoided all irrigation *pivôs*. As a result impact on agricultural production was minimized. Adverse impacts on agricultural production are irreversible only in the areas used for erecting the towers. Along the entire route only pastureland and plantings of millet and soybeans were identified, these crops do not pose any threat to the TL because fire is not used in their management as such their cultivation will continue after the construction is completed. Compensation paid for crops pursuant to the provisions of the applicable legislation.

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.

#### PS6: Biodiversity Conservation and Natural Resource Management

The project crosses a landscape of highly modified cerrado habitat and large expanses of agricultural lands. Fragments of good quality natural habitat are located predominantly in the far north and far south ends of the project, and along streams and rivers. 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 500 m in width, which is the distance between adjacent towers. Where required, tower heights are 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 7.5 km of the right-of-way (approximately 1% of the total length), the right-of-way crosses forested habitat in which long-term vegetation management using manual methods will be required.

The 70-m wide right-of-way encompasses 47.7 km<sup>2</sup> of land, of which 4.2 km<sup>2</sup> are in native vegetation or a mosaic of secondary vegetation modified by human use. Approximately 44% of the right-of-way crosses grazing or cropland. The project crosses one designated protected area, APA do Planalto Central, which is an Área de Preservação Ambiental (APA) that encompasses the entire Federal District. An APA typically is a very large designated mixed use area that is established to protect either a habitat type or a land use that remains of particular interest for protection (in this case, watershed protection and formation of greenbelts within and around Brasília). It is very common for an APA to be occupied by farms and human settlements, even though the designation of an APA typically calls for sustainable uses. Transmission lines are among the allowed sustainable uses, and the project will not have an adverse impact on the resources that the APA do Planalto Central was established to protect.

Brazilian law stipulates that at least 0.5% of the cost of an infrastructure project must be set aside for establishment of conservation units (e.g., parks and protected areas). Because this project involves more than one state, the federal environmental authority, IBAMA, is involved in the approval of these funds for use in either new conservation units or for improvement of existing units. For the project, the LO specifies that the compensation will be implemented in partnership with the Department of Environmental Engineering in FINOM and the Department of Biology of TECSOMA, both located in Paracatú, as discussed in a public hearing on the project held in Paracatú on 19 October 2006.

#### PS8: Cultural Heritage

The project crosses landscape that is known to have resources of paleontological, archaeological, or historical interest. The project's Environmental and Social Action Plan includes a Program for Inspection, Archaeological Rescue, and Preservation of Archaeological, Historical, and Cultural Heritage. Standard practice for the project is to have a recognized expert to conduct a site survey of each proposed tower location prior to 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, stop work, and request expert assistance, as per requirements of PS8 when there is a risk of chance finds.

#### **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 19 January 2007, the Construction License (LI) on 2 April 2007, and the License to Operate (LO) on 25 February 2008.

#### **G. Availability of Documentation**

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