

Environmental and Social Review Summary

Expansion of the North-South Interconnector III LT Triangulo (LTT) SA. 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:	LT Triangulo SA.
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 of south-eastern Brazil by improving the North-South Interconnector. The project consists of construction and operation of a 692 km 500kV transmission line, one new substation at Estreito and support facilities, including equipment, terminal handling, protection, telecommunications and supervision and control. The 692 km transmission line is divided into five segments between the following substations: Emborcação- Nova Ponte (87 km), Itumbiara-Nova Ponte (181 km), Nova Ponte-Estreito (140 km), Nova-Ponte-São Gotardo 2 (193km), São Gotardo-Bom Despacho 3 (91 km) with a new substation at Estreito. The line lies entirely in the state of Minas Gerais and goes through 19 municipalities. The first segment starts at Emborcação substation, located in the municipality of Araguari and terminates 87 km later at Nova Ponte substation. This segment passes through the municipalities of Araguari, Indianópolis and Nova Ponte. The second segment continues on to Nova Ponte substation for 181 km passing through the municipalities of Nova Ponte, Uberaba, Uberlândia, Tupaciguara and Araporã ending at Itumbiara substation. The third segment of 140 km joins Nova Ponte with the new substation at Estreito passing the municipalities of Nova Ponte, Sacramento and Ibiraci. The fourth 193 km segment links the substations Nova Ponte with São Gotardo 2 passing through the municipalities of towns of Nova Ponte, Santa Juliana, Pedrinópolis, Perdizes, Serra do Salitre, Ibiá, Rio Paranaíba and São

Gotardo. The last 91 km segment links substations São Gotardo 2 with Bom Despacho 3 passing through the municipalities of São Gotardo, Serra da Saudade, Dolores do Indaiá and Bom Despacho. All construction activities are now complete and the project is in operation. The Licença de Operação (LO) was issued by COPAM on March 12, 2009 and this license obliges the operator to comply with the conditions set out in the Licença Prévia (LP) and the Licença de Instalação (LI). 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.

B. Environmental and Social Categorization

This 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 impacts/issues are: construction-related impacts (such as erosion control, noise and dust emissions, drainage, etc.), occupational health and safety; and modification on natural habitat, 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.

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 **HORIZONTE ENGENHARIA AMBIENTAL LTDA.**, (May 2007).
- Relatório de Impacto Ambiental (RIMA), prepared by **HORIZONTE ENGENHARIA AMBIENTAL LTDA.**, (May 2007).
- Land Acquisition and Compensation Tables
- Licença Prévia (LP), issued by COPAM (March 26, 2007.)
- Licença de Instalação (LI), issued by COPAM (November 9, 2007)
- Licença de Operação (LO), issued by COPAM (March 12, 2009)

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

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 for this project have adequately identified likely impacts and risks in the project's area of influence. 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 several 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 programs are divided/presented in three phases: Preconstruction, construction, and operational 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.

PS2: Labor and Working Conditions

The labor law of Brazil incorporates the core principles of ILO. The investor, Cobra Instalaciones y Servicios – LTT (the project enterprise) has constructed and is operating several transmission lines in Brazil and complies with the national 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 ensured that relevant requirements of PS2 were applied to all contracted workers. Up to 2,500 workers were employed during the peak of construction for each of the transmission lines and associated facilities. Approximately 600 workers were directly contracted by the investor and approximately 1,900 were sub-contractual employees. About 60% of skilled and semi-skilled workers came from other regions, with the majority of unskilled labor was hired locally.

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 also 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 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 construction wastes. Potential for changes to water courses and drainage was also identified as a negative impact. 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. Standard practice by this investor are (i) 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; (ii) Recycling of materials are implemented to the extent practical; (iii) Herbicides are not used in ROW clearing and/or maintenance. 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.

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. Please see PS1. 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 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.

For risks associated with the influx of workers including increased demand for local infrastructure facilities, especially for health and housing, the investor employs a standard approach. The investor takes full responsibility by providing accommodation to all employees. For those sections of the transmission Line within a range of 50 km 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. Fifty percent of the LTT transmission line route is within reasonable vicinity of urban centers, therefore four camps were established along the more distant sections of the route. Please also see the section on PS2. Regarding the risk of communicable diseases during the construction phase, preventative health programs were included in workers' health and safety programs.

The LTT substation area is fenced off, well illuminated with restricted access and guarded. Security personnel at project facilities including substations do not use firearms.

PS5: Land Acquisition and Resettlement

The EIA indicates that no community would be directly crossed by this transmission line, however there were 4 to 5 cases where real estate properties were demolished to free the right of way. In all of these cases the owners were compensated. The investor confirmed that along the 692 km stretch of transmission line, the following numbers of properties were affected by the transmission line (by segment):

- Emborcação- Nova Ponte (87 km) – 86 (properties affected) and 44 (compensation complete);
- Itumbiara-Nova Ponte (181 km) – 199 (properties affected) and 44 (compensation complete);
- Nova Ponte-Estreiro (140 km) – 162 (properties affected) and 25 (compensation complete);
- Nova-Ponte-São Gotardo 2 (193km)/São Gotardo-Bom Despacho 3 (91 km) – 337 (properties affected) and 39 (compensation complete) with 6 properties belonging to CEMIG (electricity company). MIGA will require an update on land acquisition and compensation before the contract of guarantee is signed.

The outstanding cases of compensation are pending final completion. 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.

In principle, the transmission line's ROW is designed to avoid proximity to urban areas, settlements, public offices to minimize land acquisition impacts. Cash compensation is paid for structures and land at market values, and cost production is included in compensation for crops. All property transactions and compensation are recorded by public notary.

PS6: Biodiversity Conservation and Natural Resource Management

The project (including the transmission lines, substations and associated/support facilities) covers a landscape that is predominantly cerrado vegetation, savanna with patches of riparian forest that have been highly modified by agricultural development i.e. re-forested eucalyptus and pines, livestock, coffee, soy, maize, sugar cane and rubber plantations. The native vegetation along the line is highly fragmented. The directly affected area is about 4,152 ha which includes a 60m right-of-way along the 692 km transmission line.

Riparian forest habitat is generally identified by the Forestry Code as areas for permanent preservation, and is 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 was taken to trim a little above ground level, to allow rapid regeneration of growth from roots and stumps. Thereafter, trimming was carried out by manual means only as needed for security of the transmission line.

The project crosses 6 (six) conservation units (i.e. parks and protected areas), namely:

- Parque Victório Siquierolli, in the city of Uberlândia - distance of 9,0 km in relation to the point next.
- Parque Municipal do Sabiá, in the city of Uberlândia - distance of 6,0 km in relation to the point next.
- Parque Estadual do Pau Furado, in the city of Uberlândia - distance of 3,0 km in relation to the point next.
- Área de Proteção Especial Confusão , in the city of distance of 0,31 Is Gotadro - km in relation to the point next.
- Galheiros, in the city of Partridges - distance of 5,70 km in relation to the point next.
- Reserva do Jacob - Fazenda Limeira, in city of New Bridge - distance of 1,60 km in relation to the point next.

While the transmission line crosses conservation areas, livestock and agricultural growth has led to diminished natural habitat. The EIA also concludes that the construction and operation of the line would not significantly affect the habitat of the resources that the units were established to protect. It is very common for these areas to be occupied by farms and human settlements, even though the designation of a park or protected area 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. 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).

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, Protection 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. The investor commits that in case of chance finds mitigation measures are designed and implemented consistent with relevant national laws and PS8.

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 COPAM issued the Preliminary License (LP) on 26 March 2007, the Construction License (LI) was issued on 9 November 2007, and the license to operate (LO) was issued on 12 March 2009.

Environmental studies are approved by national and local 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)
- Fundação 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 EIA and RIMA on its website along with this Environmental and Social Review Summary.