DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

COLONIA ARIAS WIND POWER PROJECT

(UR-L1103)

ENVIRONMENTAL AND SOCIAL MANAGEMENT REPORT
(ESMR)

February 2015

Table of Contents

ACRONYMS

AAP	Autorización Ambiental Previa
AAO	Autorización Ambiental de Operación
DINAMA	Dirección Nacional de Medio Ambiente
DINAMIGE	Dirección Nacional de Minería y Geología
DD	Due Diligence
ESAP	Environmental and Social Action Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMR	Environmental and Social Management Report
ESG	Environmental Safeguards Group
IBA	Important Bird Area
IDB	Interamerican Development Bank
IFC	International Finance Corporation
INC	Instituto Nacional de Colonización
IUCN	International Union for Conservation of Nature
MEC	Ministerio de Educación y Cultura
MVOTMA	Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente
PGA	Plan de Gestión Ambiental
SCF	Structured and Corporate Finance Department
TL	Transmission Line
UTE	Administración Nacional de Usinas y Trasmisiones Eléctricas
VAL	Viabilidad Ambiental de Localización

COLONIA ARIAS WIND POWER PROJECT

Uruguay

UR-L1103

Environmental and Social Management Report – ESMR

I. INTRODUCTION

A. Summary Table

Project Name:	Colonia Arias Wind Power Project
Country:	Uruguay
Borrower:	Fideicomiso Financiero Arias
Sponsor:	Administración Nacional de Usinas y Trasmisiones Eléctricas ("UTE")
Project Cost:	Approx. US$ 179.7 million
IDB A-Loan:	Approx. US$ 71.8 million
Resp. Department:	Structured and Corporate Finance Department (SCF)
Environmental Category:	B

B. Background

1.1. IDB financing is proposed for the development, construction, operation and maintenance of a 70 MW wind farm and its associated facilities, including a 26 km transmission line, to be located in the Department of Flores, Uruguay, which will sell the produced energy to the *Administración Nacional de Usinas y Trasmisiones* (UTE), Uruguay's state-owned energy utility, under a long term power purchase agreement ("the Project").

1.2. Approximately 45 percent of the installed energy capacity in Uruguay is hydropower. As a result, during years of low rainfall, UTE is required to replace hydropower generation with fossil-fueled thermal generation and energy imports from Argentina and Brazil. In order to reduce its dependence on fossil fuels and hydraulic energy, in 2011 UTE engaged in a program to develop wind farms, in which it will retain total or partial ownership. It is expected that by 2017, Uruguay would achieve 30% of installed capacity in non-conventional renewable energy. Under such program, UTE already built several wind farms and awarded the construction of the Colonia Arias Wind Project.

1.3. The Borrower will be the *Fideicomiso Financiero Arias*, a special purpose company (SPC) incorporated under the laws of Uruguay to develop the Project, which is expected

to raise 80% of the required funding through an Initial Public Offering in the Montevideo Stock Exchange.

1.4. The Borrower entered into an EPC contract with Gamesa Eólica SL y Gamesa Uruguay SRL. Operation and maintenance will be also provided by Gamesa Uruguay SRL, under a contract satisfactory to the Bank. Gamesa S.A., the parent company in Spain, will guarantee all the obligations undertaken by the EPC and O&M contractors under their respective contracts.

II. PROJECT DESCRIPTION

2.1. The Project consists of the construction, operation and maintenance of a 70 MW wind farm (Colonia Arias) and its associated facilities, to be constructed in a zone of high wind potential located southwest from the city of Trinidad in the Departament of Flores, Uruguay. The Project site lies approximately 20 km east of the City of Sarandi Grande, approximate population 6,000 individuals. The information provided below has been obtained from the EIA for the Colonia Arias Project and through investigations with project representatives during the due diligence site visit.

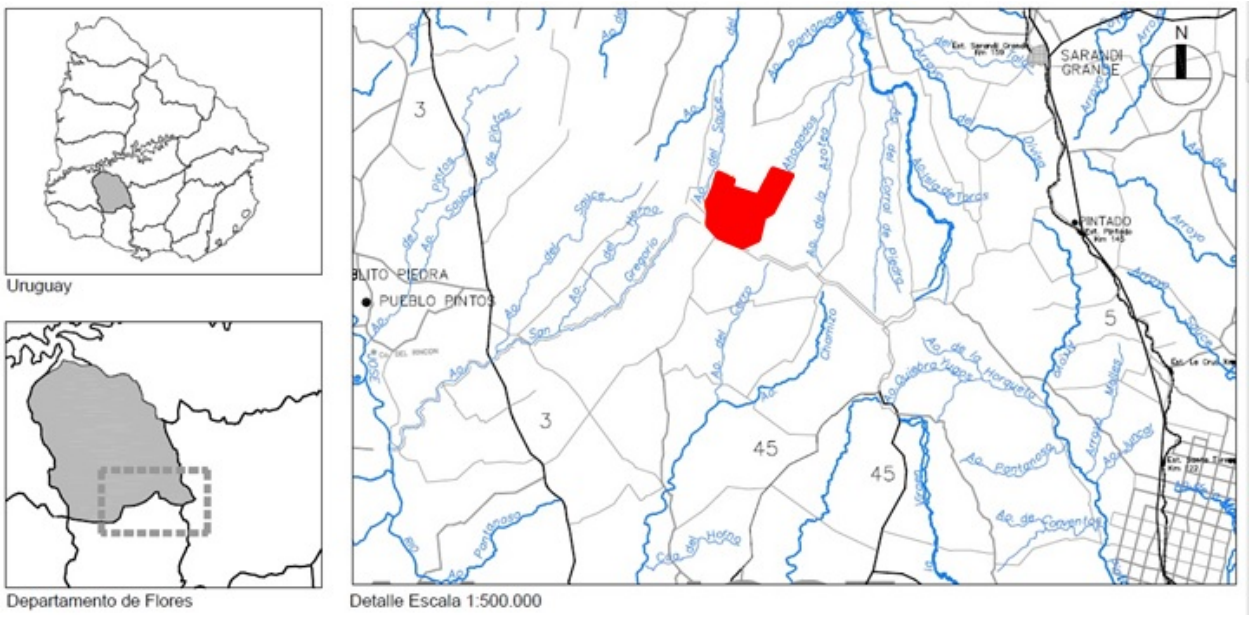

FIG. 1: PROJECT LOCATION

C. Key Project Infrastructure Components and Schedule

2.2. The Project encompasses the installation or construction of the following components: i) installation of 35 wind turbines (Gamesa G114) with a nominal capacity of 2.0 MW each; ii) construction of a substation and a metering center; iii) construction of a 26 km long 150 kV transmission line, to connect the wind farm to the national grid; iv) several smaller underground medium tension 30 kV or 31.5 kV transmission lines within the

wind concession area; v) construction of approximately 13.5 km of maintenance and service roads within the wind concession (see Figure 2, which includes the location of the substation and wind turbines).

2.3. **Wind Turbines:** The 35 Gamesa G114 wind turbines to be installed on the site will have a tower height of 93 m and a rotor diameter of 114 m. Each rotor contains three blades and has a swept area of approximately 10.207 m^2, with an operating speed of 13.07 rpm. An area of 4.5 x 4 Km will be occupied by the turbines and a small area surrounding each turbine will be cleared for service and maintenance at each turbine location. Each generator will require a work platform of approximately 975 m^2 (30m x 32.5m) and will include a concrete foundation 16 m in diameter and 2.4 m deep. Concrete for the foundations will be supplied from a temporary batch plant to be installed on site. Approximately 615 m^3 of material will be excavated at each turbine site to prepare the foundation and work platform. The wind turbines will be installed in two properties belonging to the *Instituto Nacional de Colonizacion* (INC), which are used by local farmers for agricultural and livestock activities.

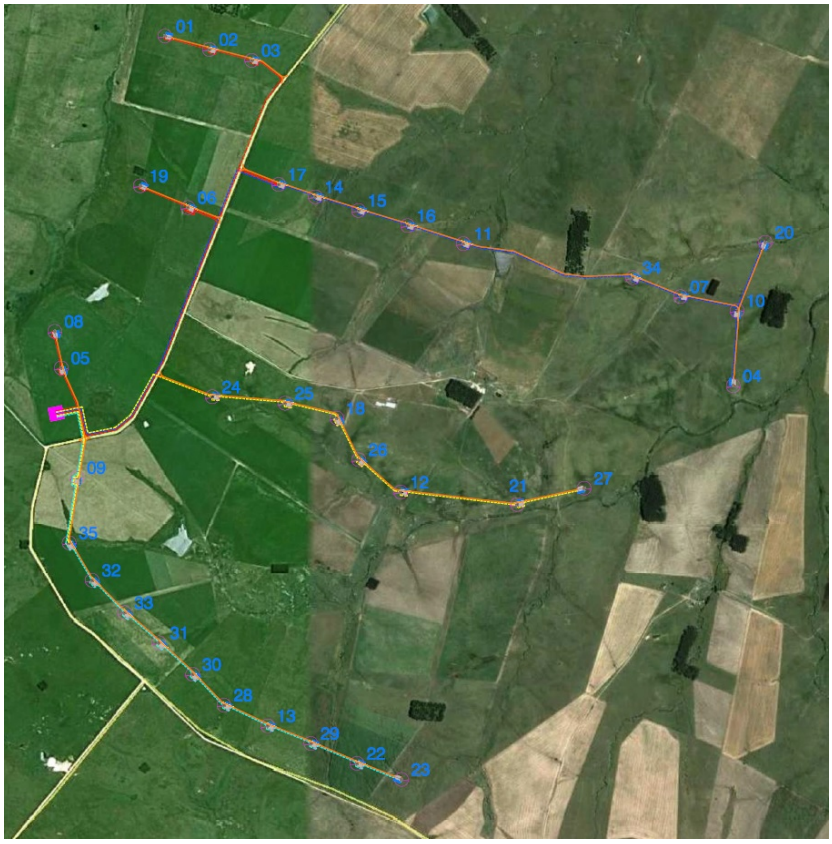

FIG. 2: LOCATION OF THE WIND TURBINES

2.4. **Substation:** A 31.5 kV/150 kV substation and a metering station will serve as the connection to the national grid. The substation and control center will occupy an area of

approximately 4.0 ha, including office buildings and other facilities. A security fence will be installed around the substation.

2.5. **Transmission Line:** A 26 km long 150 kV above ground transmission line will connect the Project to the Uruguayan national grid, specifically to the Cerro Colorado existing substation. The TL will affect 30 properties, belonging to 23 private land owners. According to local legislation, the right of way for this type of transmissions lines are 60 m wide. Negotiations with the land owners along the transmission line in order to agree land lease terms have commenced but are not yet complete. The land lease agreements, when finalized, will be provided to the Bank.

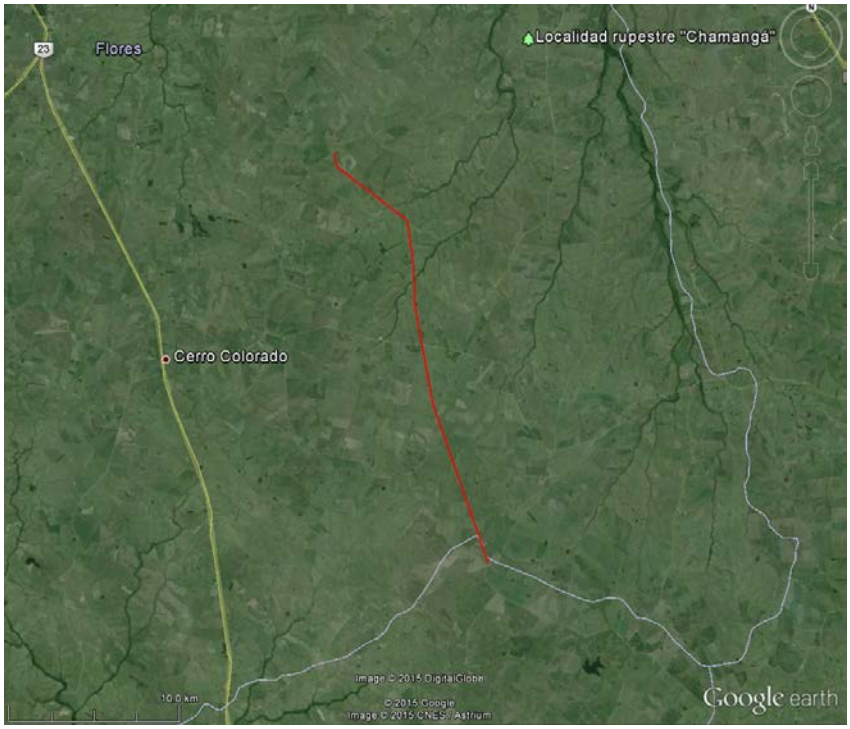

FIG. 3: TRANSMISSION LINE

2.6. **Low Tension Underground Transmission Lines:** Smaller, low-tension underground transmission lines, each 30 kV or 31.5 kV, will be installed to connect the individual generators to the substation and then into the 150 kV transmission line. These smaller transmission lines will be buried in trenches 1.2 m deep and between 0.60 m and 1.5 m wide. The alignment of the underground lines will follow the access roads.

2.7. **Access Roads:** A total of approximately 13.5 km of access / maintenance roads, some of which currently exist, will be constructed and/or maintained to allow access of heavy construction equipment and supplies as well as long-term service and maintenance of the wind farm. The access roads will be as a minimum 7.5 m wide and will remain unpaved. Rock and other material required for the construction of the access roads will come

from the excavated material from the turbine sites or will be provided by licensed quarries.

2.8. ***Budget, schedule and workforce.*** The total investment for the Project is expected to be US$179.7 Million. The estimated construction time is approximately 17 months; the Project is expected to start construction in March 2015 and to achieve full installed capacity by August 2016. Approximately 125 workers will be employed during the peak construction period of the wind farm. During operations, 6 workers will be employed full-time at the site.

D. Environmental and Social Setting

Environmental setting:

2.9. The Colonia Arias Wind Project site is located in the southern part of the Flores Department, approximately 20 km south-east of the city of Sarandi Grande (88 inhabitants) and about 40 km south-west from the city of Trinidad (21,500 inhabitants and capital of the Flores Department), in the mid-southern part of Uruguay. Because of the rich wind resources of the region, other wind power projects have identified southern Uruguay as a potential development area and several large-scale wind farms are currently in the development stage in the country.

2.10. The wind project will cover an area of approximately 8,100 ha, of which a total of 17.5 ha (approximately 0.21%) will be permanently affected by the construction of the wind turbines, maintenance roads, internal transmission lines, and the substation. The overall wind project area has already been largely impacted by human activities, primarily agriculture and cattle grazing. The landscape appears to be mostly composed of pasture lands and agricultural fields.

2.11. According to the EIA, no critical natural habitats exist within or in the surroundings of the wind farm area. There is an archeological site 18 km north from the project site, the Chamangá Rock Painting Place (*Localidad Rupestre de Chamangá*), a concentration of rock paintings located to the east of Trinidad, Uruguay. This site is part of the Uruguayan National Protected Areas System (*Sistema Nacional de Áreas Protegidas - SNAP*) and its inclusion in the UNESCO World Heritage list has been proposed; it contains 43 rock paintings located in the open air, but it will not be impacted by the project.

2.12. Regarding birds and bats, given that the EIA included only a desk review and short-term field surveys, UTE hired a local firm to conduct a birds and bats' baseline field study in 2013. The study included 7 field visits in 2 different periods (April-May and November-December). Surveys detected 3,808 individuals representing 67 species (approximately 15% of the bird species registered in Uruguay). Approximately 12% of all species registered were migratory species. None of the species registered during the field investigations are listed as endangered or threatened on the IUCN Red List of Species. Two of the species identified are listed as species of concern and categorized by IUCN

as Near Threatened (*Amazoneta brasiliensis* and *Speotyto cunicularia*). The bats' study identified 11 species, none of them neither endangered nor threatened.

2.13. No relevant streams exist within the wind project site as the terrain is relatively flat. A few cattle ponds were also observed on the property. The EIA did not identify any sensitive species living in or near the cattle ponds. Nevertheless, cattle ponds and riparian areas can be considered to be sensitive environments and are important for the survival of the cattle and wildlife and will therefore be protected. Engineering design has placed the turbines and other project related infrastructure away from these sensitive areas.

Social setting:

2.14. The project site is located approximately 22 km from Route Nr. 3. The closest urban settlements are the village of Sarandi Grande (88 inhabitants) and the towns of Pintado (170 inhabitants) and Cerro Colorado (96 inhabitants), all of them located about 20 km from the site in a rural area mainly dedicated to the dairy and cattle raising, as well as some agricultural activities. The majority of the non-skilled labor required for construction is expected to come from these cities and/or the bigger city of Trinidad (21,500 inhabitants, 40 km from the project site). Transportation to the Project area will be facilitated by the cities' close proximity to the Project area; however, the Project is likely to provide transportation services for workers. Given its proximity to urban settlements, just a small work camp will be installed at the project site.

2.15. The land use in the Colonia Arias site corresponds mostly to cattle grazing, although also noteworthy is the farming of crops such as: sorghum, alfalfa, clover, soybeans, corn and oats. The main roads in the region are the National Routes Nr. 3 (20 km east from the project site) and Nr. 5. The annual average daily traffic on Route Nr. 3 in the section of interest is 2,395 vehicles, of which the 61.7% corresponds to cars and utilities, the 38.3% to heavy traffic.

2.16. The property on which the wind farm will be placed is owned by the *Instituto Nacional de Colonizacion* (INC), an Uruguayan public institution created to facilitate access to land and financing to small farmers in Uruguay; UTE will sign a 30 years leasing contract with INC. The right of way of the transmission line will partially affect approximately 30 private properties. A piece of land of 200 x 200 m will be expropriated for the installation of the substation.

2.17. The EIA confirmed that households located close to the wind park will not be impacted by the Blinking Effect during operation of the wind farm over what is generally considered acceptable in Uruguay (established by DINAMA): more than 30 minutes per day and more than 30 hours per year. According to the same source, noise levels during construction and operation would never surpass the upper limit established by DINAMA during operation -45 dB(A), or will not exceed more than 3 dB(A) the baseline noise if this exceeds 42 dB(A). There are seven households located at a distance of less than 1,000 from wind turbines, ranging between 784 to 950 m.

E. Alternative Analysis

2.18. The project EIA only analyzes the preferred alternative, or "the Project"; it does not provide a detailed alternatives' analysis. The Project developer did conduct its own internal procedure to identify several alternative site locations and a selection process ensued to identify the preferred alternative. Selection criteria included geographical area which provides optimal wind conditions allowing for the use of 2 MW turbines rather than using larger numbers of smaller capacity turbines as well as other factors including land ownership, proximity to existing infrastructure (substations and transmission lines), accessibility, and distance from major human settlements. The site selected is located in a high wind resource area with excellent accessibility for the transport of materials and will have minimal impacts to only a few property owners.

2.19. The first VAL study presented to DINAMA in May 2012 included an 11 km long transmission line (see fig. 4 below), which was replaced afterwards by the current 26 km TL. This decision was made mainly based on technical reasons and in order to connect to an existing UTE substation.

FIG. 4: ANALYZED ALTERNATIVE FOR THE TRANSMISSION LINE

III. COMPLIANCE STATUS AND PROJECT STANDARDS

A. Appraisal process and local requirements

3.1 Uruguayan Law Nr. 16.466/94 of Environmental Impact Evaluation and Decree 345/2005 establish the requirements for obtaining environmental permits for projects. The process starts with a location-specific environmental feasibility study (*Viabilidad Ambiental de Localización*, VAL) which is needed to determine if a selected location is suitable for a project from an environmental point of view. All projects must present to the National Environmental Authority (*Dirección Nacional de Medio Ambiente* – DINAMA) the project's environmental information prior to initiating any construction activity. DINAMA reviews the project information and classifies the project in one of three classes: A, B and C. Projects or activities classified as Class A do not need to present an EIA report, but an environmental management plan, whereas projects classified as Class B or C require the preparation of an EIA report, being C the classification for the project with most significant impacts, which require public consultation.

3.2 DINAMA granted the Declaration of Environmental Viability for the Colonia Arias Project on November 3rd, 2014, following a review of the VAL. Under these regulations, the Project has been classified as Category B, thus requiring the preparation and submittal of an Environmental Impact Assessment (EIA). An EIA was prepared and submitted to DINAMA for approval on December 24th, 2014; to date the environmental license has not been granted by DINAMA yet. The EIA for the project –that includes both the wind farm and the transmission line- was provided to the Bank for review.

3.3 ***Public consultation.*** The consultation process for the transmission line was conducted by the UTE in conjunction with the consultation for the wind farm in 2012. According to the regulation 349 of the Ministerio de Vivienda Ordenamiento Territorial y Medio Ambiente (2005) consultation for transmission lines below 150 kV is not required in Uruguay; however, the Bank does require consultation with affected parties. At IDB request, and given the change of the transmission line original design, UTE performed a new consultation process in December 2014 with the affected parties and the *Intendencia* of the Department of Flores.

B. IDB Safeguard Policies

3.4 The Project was classified as Category B by the project team according to Directive B.3 of the Environmental Safeguards Policy (OP-703), given that is likely to cause mostly local and short-term negative environmental and associated social impacts and for which effective mitigation measures are readily available. The environmental and social Due Diligence (DD) determined that the Project is compliant with the applicable policy directives of OP-703 and with the relevant provisions of other policies, specifically the Access to Information Policy (OP-102), the Disaster Risk Management Policy (OP-704), the Involuntary Resettlement Policy (OP-710) and the Policy on Gender Equality (OP-270). According to the findings of the DD, no impacts on indigenous people are expected, therefore, the OP-765 (Indigenous People) policy does not apply.

3.5 The Project complies with the EIA requirements of Directive B.5 (see paragraphs 3.1 through 3.3 above) and the consultation requirements of Directive B.6. The Project also adheres to all applicable national laws according to Directive B.2 (see Section III.A above). The Project includes provisions for Bank monitoring of compliance with all policy requirements (see Section V.B) according to Directive B.7. The Project does not significantly convert or degrade critical natural sites, affect protected areas or damage cultural sites as prescribed by Directive B.9. Project waste management procedures and standards, and pollution and emissions limits are in compliance with Directives B.10 and B.11 (see Section IV.B). The project also complies with Directive B.12, given that compliance of the project's construction process with the relevant provisions of IDB policies was confirmed during due diligence.

Policy / Directive	Applicable Aspect	Compliance Rationale
OP-703 Environmental and Safeguards Compliance Policy		
B.1 Bank Policies	Compliance with applicable IDB policies	The project is currently fulfilling commitments made to the Bank (see ESAP) in order to be in full compliance with all IDB policies and directives. The implementation of the ESMP will ensure the Project remains in compliance once construction commences and throughout operations.
B.2 Country laws	Compliance with country laws and regulations	The project is currently in compliance with all Uruguayan laws and regulations. Land lease agreements will be made with the property owners in the wind project area and along the transmission line alignment. Environmental site selection permit have been obtained and the environmental license is being processed.
B.3 Screening and Classification	Application of appropriate classification	The Project has been screened for its potential environmental and social impacts and has been classified as a Category B operation.
B.4 Other Risk Factors	Third party negotiations	The project will result in economic displacement along the transmission line corridor, which must comply with the Bank's policy on Involuntary Resettlement. The negotiations and compensation will be conducted by UTE. Land lease / land use contracts with impacted property owners along the transmission line will be provided to the Bank. Property owners on the wind farm will sign land lease agreements and owners along the transmission line will sign right-of-way agreements, which will be provided to the Bank.
B.5 EA Requirements	Application of adequate assessment process	In accordance with both Uruguayan regulations and Bank policies for Category B projects, an Environmental Impact Assessment was prepared for the project, which fulfilled IDB EIA guidelines and requirements.
B.6 Consultations	Project has undergone appropriate public consultation	The project has conducted two public consultation meetings with the local communities. To date, the community supports the operation. The Project plans to continue engaging the local communities to identify social programs in need of assistance
B.7 Supervision and Compliance	Internal supervision and reporting	The Project's ESMP contains provisions for self-monitoring and supervision on a quarterly basis, as well as supervision of contractors, in order to maintain a high

		level of compliance. Additionally, Government entities, as well as the IDB Environmental Safeguards Unit will monitor the project during construction and operation. The Project will submit monthly compliance reports during construction and annual compliance reports during operations.
B.8 Transboundary Impacts	N/A	The Project does not impact neighboring countries.
B.9 Natural Habitats and Cultural Sites	Conversion of natural habitat	The project does not lie within any protected area and no critical natural habitats exist within or in its surroundings. There is an archeological site 18 km north from the project site, the Chamangá Rock Painting Place (*Localidad Rupestre de Chamangá*), a concentration of rock paintings located to the east of Trinidad, Uruguay. This site is part of the Uruguayan National Protected Areas System (*Sistema Nacional de Áreas Protegidas - SNAP*) and its inclusion in the UNESCO World Heritage list has been proposed; it contains 43 rock paintings located in the open air. The Project will occupy previously disturbed lands and will not present a significant conversion or degradation of this critical natural habitat. The Project area's current land use is agricultural land and pastureland, not native grassland.
B.10 Hazardous Materials	Waste management	The project's ESMP provides a strict waste management program. Due to the nature of the operation, few hazardous materials are stored on-site during construction (minimal amounts of fuel and paint) and it is envisioned that no hazardous materials will be stored at the facility during operations. A licensed contractor will be contracted to handle the waste management. The project's Contingency Plan also describes mechanisms to control spills or other incidents.
B.11 Pollution Prevention	Pollution control and CO_2 emissions	The project's PGA provides measures to control pollution such as project waste material, cement, and sediment run-off. The project will reduce the country's CO_2 emissions by …… ton CO_2/year by providing a source of green energy. The project's Contingency Plan also describes mechanisms to control spills or other incidents.
B.12 Projects Under Construction	N/A	The Project is not currently under construction.
B.13 Non-Investment and Flexible Lending Instruments	N/A	N/A
B.14 Multiple Phase Loans	N/A	N/A
B.15 Co-Financing Operations	Potential presence of other lenders	Besides the IDB A-loan, the Project will be financed through the China Fund and other potential B-lenders. The Project's ESMP complies with other international standards and will assist the Project to maintain a high level of compliance.
B.16 In-Country Systems	N/A	N/A
B.17 Procurement	N/A	N/A
OP-710 Involuntary	Right of way for the	No involuntary resettlement in the form of physical

Resettlement	transmission line and land lease agreements with the wind farm property owners	displacement will occur as a result of the project; however, there will be approximately 30 property owners who will experience economic displacement due to the placement of the transmission line. The negotiations for land use agreements are being conducted by UTE. UTE has been able to agree right-of-way agreements with most of the landowners. It is likely the Government of Uruguay will use its right to indemnify the remaining parcels in order to provide a right of way for the transmission line. The Bank will monitor the negotiation process and review land lease / land use agreements.
OP-765 Indigenous Peoples	N/A	No indigenous communities or peoples will be negatively affected by the Project; and no indigenous groups have been identified in surrounding areas.
OP-704 Disaster Risk Management Policy	N/A	The area is not known to be a disaster risk area.
OP-270 Gender Equality	Avoiding gender discrimination within the Project or as a result of the Project. Providing opportunities for women.	Women will be incorporated into the labor force where feasible; no gender discrimination will occur due the project. The Project is currently attempting to identify social programs to benefit women and children in the local communities.
OP-102 Access to Information Policy	Project information disclosure	The Project has adequately disseminated information in the local community in radio advertisements and letters to stakeholders. Two public consultation meetings have also occurred. IDB will also make relevant Project information available on its website.

C. Project requirements and standards

3.6 The Project has prepared a project-specific Environmental and Social Management Plan (ESMP) or *Plan de Gestión Ambiental* (PGA) as required in the ESAP. The PGA outlines the Borrower's environmental and social responsibilities including waste management, traffic management, health, safety and labor, monitoring and auditing. The PGA also addresses specific project location related issues such as erosion control, spill management, and road safety and describes any detailed measures required to mitigate any potential issues. The Project has also prepared a Contingency Plan to outline the actions to be taken in the event of a spill, accident, emergency, or other incident.

3.7 UTE has developed a Grievance Mechanism which will be implemented and tracked during construction and operation.

IV. KEY ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS

A. Summary of key impacts and risks

4.1 The primary potentially negative environmental impacts and risks during construction phase will be mainly associated with the erection of the wind turbines, the installation of the transmission line, the substation and the access roads. Main construction impacts are: (i) habitat disturbance; (ii) soil erosion; (iii) dust generation; (iv) increase in heavy traffic; (v) noise; (vi) loss of vegetation; (vii) occupational health and safety hazards for the

workforce; (viii) conversion of land use with visual impacts; (ix) increased use of previously inaccessible areas, and (x) economic displacement due to the right of way of the transmission line and the installation of the wind turbines. Most of these construction impacts and risk can be adequately mitigated through the implementation of appropriate management plans.

4.2 During operation, the main impacts and risks are: (i) bird and bat collision; (ii) barrier effects to movement of birds, both resident and migratory species; (iii) loss of vegetation; (iv) accidental discharges of hazardous materials; (v) community health and safety hazards; (vi) noise impacts caused by the wind turbines; and (vii) blinking effect caused by the turbine blades during dawn and dusk hours.

B. Environmental impacts and risks

4.3 One of the potential risks associated with wind power facilities is bird collision. Some migratory species were observed during the surveys; however, since the wind project area does not lie within any migratory routes or important fly-ways, the risk of collision to migratory birds is expected to be low as the numbers of individuals traversing the area will be low. The post-construction monitoring will help in determining the risk of collision during actual operations. Should collision rates be high during operations, mitigation measures such as changes in cut-in speed or mandatory temporary shutdowns during peak migrations could be implemented.

4.4 Bats also face collision risk, and other risks, associated with wind farms; in fact, the incidence of bat mortality is generally higher for bats than birds, presumably because bats seem to be attracted to wind generators. Several theories exist for this phenomenon including: the bats view the tower as a potential roost site, dead insects on and near the generator are seen as an easy food source, the bats are attracted to the heat produced by the generator, and the sound and electromagnetism produced by the generator disrupts their echolocation. Additionally, bats face barotrauma, a condition resulting from a sudden change in atmospheric pressure (such as encountered near the rotor of an operational turbine), which causes their fragile lungs to expand beyond capacity leading to death. Bat field surveys were conducted in conjunction with the EIA and no caves were observed during field visits; however, groups of bats representing four different species were observed to be roosting in abandoned houses within the Project area. Additional bat surveys were conducted in conjunction with the bird surveys detailed above. An additional two species were identified as well as the original four species previously encountered. None of these species, or any of the 20 species known to exist in Uruguay, appears as threatened or vulnerable on the IUCN List of Red Book Species. As with birds, the mortality to bats due to collisions with generators should be closely monitored and reported during operations, particularly due to the large mosquito population surrounding the project site. Mitigation measures, such as increasing the cut-in speed of the generators, could be implements should monitoring results indicate high bat mortality.

4.5 The EIA did not identify any sensitive or protected species of amphibians or reptiles occurring within the wind project area. Routine environmental inspections described in the

Plan de Manejo Ambiental will serve as safeguards against any potential impacts. The barrier effects are related to displacement. Displacement occurs when a species decreases or discontinues use of an area due to a human activity. The level of barrier effect depends on species, turbine layout, the species ability to compensate for losses in energy due to avoidance, and most importantly, the size of the wind facility and the presence of other wind farms in the region. The proposed project will have 35 turbines and is located near other known planned wind farms. Although it does not appear that the wind project area is crossed by any avian migratory routes, the barrier effect should be monitored during operation.

4.6 Another impact will be the loss of vegetation within the project area and along the new access roads and the 26 km transmission line. As mentioned previously, much of the habitat has been previously significantly impacted by human activities. While the majority of wind project area has been converted to pasture lands or agricultural lands, there are some stands of native vegetation and exotic tree species which may provide nesting habitat to various species of birds; these stands will be avoided during construction. The transmission line alignment also lies within modified pasturelands and farmlands.

4.7 Maintenance activities during operation may cause accidental discharge of hazardous materials (e.g. from changing the oil in the generator, fuel leaks from maintenance vehicles or paint spills) or trigger occupational health and safety concerns (working at heights). These potential impacts and risks are easily managed and will be addressed in the Environmental Management Plan.

C. Social impacts and risks

4.8 ***Land Acquisition and Physical Displacement.*** The Project has already identified and negotiated the land required to install the turbines, substation, underground transmission lines, and access roads. These portions of the Project do not lead to any physical displacement or resettlement. A land contract lease agreement will be signed with the owner of the wind farm site (*Instituto Nacional de Colonización*) where the turbines, substation, underground transmission lines, and access roads will be located. The land lease / land use agreements for the transmission line (26 km) are being negotiated by UTE with the property owners to be affected by the transmission line have signed land use agreements. No physical resettlement will occur along the transmission line; however, several of these owners may experience economic displacement as they lose the ability to farm portions of their land. Land lease agreements will have to be completed with the property owners before construction begins. The Bank has requested to be updated on the negotiation process, being conducted by UTE, as it progresses.

4.9 One of the most significant impacts during construction will be the induced traffic to and within the project area, mainly due to the transportation of the materials needed for the construction of the foundations of the wind towers and the transportation of the wind turbines and towers' components from the Port of Montevideo to the wind farm. The EIA estimated additional truck traffic of 7 trucks/day in the project area. The itinerary for these travels will be agreed with the Ministry of Transport (*Ministerio de Transporte y Obras Públicas* – MTOP).

4.10 Another significant impact of the operations phase of the project is the visual impact, which constitutes a permanent one. The selection of the location of the turbines took into consideration the visual analysis made during the preparation of the EIA in order to mitigate this impact, that identified the Zone of Visual Influence (ZVI) of the project (see Fig. 5 below).

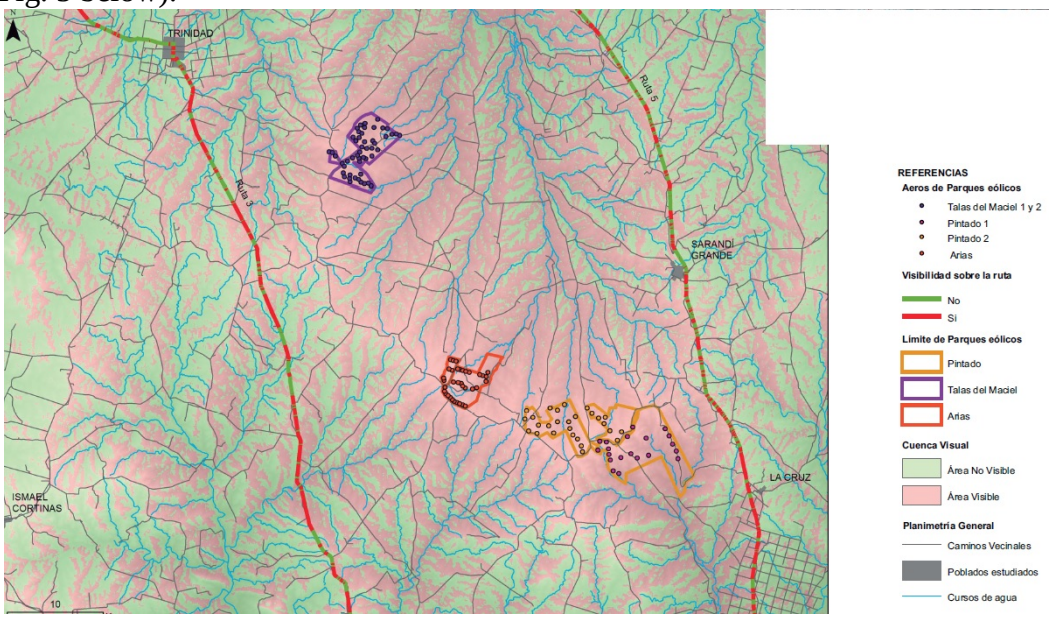

FIG. 5: PROJECT'S ZONE OF VISUAL INFLUENCE

4.11 Community health and safety hazards specific to wind energy facilities primarily include: aircraft navigation safety, electromagnetic interference and radiation. The potential of such hazards is not considered significant in the context of the Project since affected communities will continue their economic activities (grazing and agriculture) on the land where the Project is located. Increased community health and safety hazards related to public access may not be insignificant, and will need to be adequately addressed in the Project's Environmental Management Plan, including adopting appropriate risk prevention procedures and emergency planning during construction and maintenance activities.

4.12 Potential noise impacts caused by the wind turbines during operation on adjacent communities are not expected to be significant; however, there are some existing houses within the Project area and near planned turbine locations (the closest home is approximately 700 m) which should be adequate distance and will likely not require mitigation. Based on the noise study, which represents a worst-case scenario, it does not appear that any homes or other infrastructure will experience noise levels higher than the acceptable standard for night time of 3 dBA higher than baseline levels. Noise levels for all homes are also within an acceptable range of day time hours. Noise levels will be further verified through the periodic monitoring of noise level to be carried out during the Project's operation, including at the site's boundaries. Appropriate mitigation measures will be applied should noise levels exceed accepted standards.

D. Cumulative impacts

4.13 Cumulative impacts may exist in areas where multiple wind projects have been, or will be, constructed in close proximity to each other and within established migratory routes and corridors, or within sensitive areas. There are several other wind farms existing or planned in the vicinity of the project area (see Table 1 below). Given the significant number of wind turbines that will be operating in the area in the near future, the Bank will require UTE to share monitoring information with the Project Sponsors of the other facilities and, if necessary, to coordinate eventual mitigation measures.

NOMBRE DEL PARQUE EÓLICO	EMPRESA A LA QUE PERTENECE	LOCALIZACIÓN RESPECTO AL PROYECTO EN ESTUDIO	POTENCIA MÁXIMA	CANTIDAD DE AEROGENERADORES	POTENCIA NOMINAL	ESTADO DEL PROYECTO
Pintado II	LUZ DE RÍO S.A.	4,5 km en dirección Sureste	81MW	27	3 MW	Montaje
Pintado I	LUZ DE LOMA S.A.	12,8 km en dirección Sureste	20 MW	11	1,8 MW	Montaje
Pintado I	LUZ DE MAR S.A.	12,8 km en dirección Sureste	18 MW	10	1,8 MW	Montaje
Talas del Maciel I	ASTIDEY S.A.	18,5 km en dirección Noroeste	50 MW	25	2 MW	Montaje
Talas del Maciel II	CADONAL S.A.	23,7 km en dirección Noroeste	50 MW	25	2 MW	Desarrollo
Pastorale	VIENTOS DE PASTORALE S.A.	29,42 km en dirección Suroeste	49,2 MW	17	3 MW	Desarrollo

TABLE 1: Other Wind Farms Planned in the Vicinity of the Project Area

E. Positive impacts

4.14 The Project will likely result in net positive benefits for the nearby communities as well as the country, in general. The Project, during construction phase, will provide direct employment to approximately 125 workers. A preference for workers from local communities will be provided; an estimated 70% of the total workforce will be local laborers. The Project will be tied into the Uruguayan national grid, thus providing cleaner energy to the nation and reducing the carbon footprint of energy generation in Uruguay. The Project is expected to result in an estimated savings of 179 tCO_2/year through the displacement of thermal power generation.

F. IDB Additionality

4.15 Through its involvement in the project, IDB provided guidance and support to complement the EIA with additional studies, baseline surveys and other inputs, as well as to ensure compliance with IDB Policies and Safeguards, IFC Environmental, Health and Safety Guidelines and other international standards.

V. MANAGEMENT AND MONITORING OF ENVIRONMENTAL, SOCIAL, HEALTH AND SAFETY AND LABOR IMPACTS AND RISKS

A. Management Systems and Plans

5.1 The Colonia Arias Wind Project will operate under an ESMP, which is currently being developed according to the requirements established by the Uruguayan legislation and in line with the Bank's policies regarding Environmental Management Systems. The ESMP will include regular monitoring of the facilities and monthly reports will be prepared during construction concerning noise, air emissions, traffic issues, waste management, health, safety and labor performance, trainings, as well as other issues. Detailed logs will be maintained to document worker trainings, worker health certificates, work site incidents and accidents, waste registers, and vehicle maintenance. A quarterly report will be provided to the Bank during construction and annual reports will be provided during operations.

5.2 The most relevant social activities implemented by UTE to develop a good relationship with the local communities include:

i. Public Consultation: the Project has already conducted 2 public consultation meetings with community members and local authorities. The consultation sessions provided an opportunity for interested people to learn about the project and have their doubts and concerns addressed by company representatives. Details of the transmission line alignment were included during the consultations. Consultation will continue through the construction phase.

ii. Grievance Mechanism: The Project will implement a Grievance Mechanism to allow stakeholders an opportunity to voice their opinions, concerns, complaints, or comments outside of the public consultation meetings. These comments will be recorded, as well as the Project's responses to these comments. Issues will be tracked to determine how the Project responds to complaints and interacts with the complainant to resolve outstanding issues. The Grievance Mechanism will be accessible to individuals impacted by the wind farm and the transmission line.

B. Monitoring and Supervision

5.3 The project includes different levels of supervision. The most relevant ones include (i) internal project supervision, conducted by UTE's environmental team and defined within the PGA; (ii) Bank supervision, carried out regularly by the project team with the support of specialized consultants; and (iii) inspections from DINAMA, an entity of the

Uruguayan Government responsible for enforcement of compliance with environmental laws and regulations.

5.4 UTE will conduct quarterly internal audits and send quarterly reports to the Lenders. The Bank, in coordination with other co-lenders, will conduct semi-annual supervision missions during the construction phase and annual supervision missions during operations to assess compliance with Bank policies. DINAMA has the right to conduct unannounced site audits of all projects to ensure all environmental conditions are met.

5.5 UTE is preparing a detailed monitoring plan for the operations phase which will include surveys for birds and bats to assess the impacts of collisions to these species and will work with the Lenders and DINAMA to ensure monitoring protocols are compatible with Bank policies and DINAMA requirements for wind farms in operation.

C. Indicators

5.6 In the case of environmental indicators, the projects will be assessed in terms of compliance with the IDB Safeguard Policies and compliance with local regulations. The semi-annual reports provided by the Borrower will detail vital information including calculated reduction of CO_2 emissions. Based on current energy production in Uruguay, the Colonia Arias Project is expected to create a reduction of approximately 179 ton CO_2/year. Carbon reductions will be directly related to the amount of energy generated, of which, an estimated 303.1 GWh/yr is anticipated.

VI. REQUIREMENTS TO BE INCLUDED IN THE LEGAL AGREEMENTS

Throughout the life of the Loan:

6.1 The IDB will require within its Loan Agreement that the Project and each Project party (Sponsors/Borrower) and other Project/Environmental parties, including any contractors and sub-contractors will, at all times during the life of the Loan Agreement, comply with the following requirements:

1. All applicable environmental, social, health and safety, and labor Uruguayan regulatory requirements.
2. All requirements associated with any environmental, social, health and safety, and labor related permits, authorizations, or licenses that apply to the Project, the Borrower or any party responsible for executing the Project or its mitigation measures.
3. All environmental, social, health and safety, and labor requirements of the Project contracts and any subsequent modifications.
4. All aspects and components of all of the Project's environmental, health and safety, social and labor documents.
5. All relevant IDB policies such as the Environment and Safeguards Compliance Policy (OP-703), the Involuntary Resettlement Policy (OP-710), the Disaster Risk Management Policy (OP-704), the Disclosure of Information Policy (OP-102) and

the Gender and Equity in Development Policy (OP-270) and their respective guidelines.

6. Comply with all the requirements indicated in the Environmental, Health and Safety Action Plan.

Prior to First Disbursement:

6.2 The Project shall appoint an Environmental and Social Specialist (new hire or designate existing employee) for the duration of the construction period to prevent and manage potential impacts and supervise and monitor mitigation measures. The Borrower shall present to the Bank an updated organizational chart illustrating roles and responsibilities throughout the project cycle.

Prior to each disbursement:

6.3 The Sponsor/Borrower shall certify compliance with all environmental social, health and safety and labor requirements in the loan agreement, including any Corrective Action Plans if applicable.

Prior to construction:

6.4 The Borrower shall send to IDB copy of the AAP (*Autorizacion Ambiental Previa*) of the Project issued by DINAMA.

6.5 The Sponsor/Borrower shall incorporate into all contractors' contracts clear regulations and penalties for non- compliance with policies, plans and programs (including mitigation measures) adopted by the company. This will include clear procedures and timing for reporting environmental, health and safety related incidents/accidents and a specific monitoring program to assess causes of incidents/accidents and track performance of the corrective measures. The Sponsor/Borrower shall provide evidence of supervision and oversight of the contractors.

6.6 The Project shall demonstrate to the Bank that all pending land use permits have been obtained. Copies of relevant permits, contracts, and agreements shall be submitted to the Bank.

Prior to operation:

6.7 The Project shall develop and implement a project specific ESMP for Operations to assess and mitigate the negative impacts associated with the Project during the operations phase. The ESMP will include a defined monitoring and supervision regime. All project contractors will also be required to comply with the actions described in the ESMP.

6.8 The Project shall develop a Bird and Bat Monitoring Protocol to be approved by the Bank. At a minimum, the bird and bat monitoring and related activities will be initially conducted for a period of three years following the start of operations of the Project. Depending on the survey results the Bank may decide to continue the bird and bat monitoring for additional years.

ENVIRONMENTAL and SOCIAL ACTION PLAN (ESAP)

#	Item	Action	Deadline	Status
A. ENVIRONMENTAL AND SOCIAL PERMITS				
1	***Environmental license***	Submit to the Bank copy of the *Autorización Ambiental Previa* (AAP) issued by DINAMA for the Colonia Arias Wind Project	Prior to start of construction´s phase	In process
B. ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEMS / PLANS				
2	***E&S Management Plans***	Develop and submit to the Bank the Environmental and Social Management Plan for operation	Prior to start of operation's phase	Pending
4	***E&S management scheme***	Submit to the Bank the environmental and social management scheme to be applied for the supervision of the project	Prior to first disbursement	Pending
5	***Contractors´supervision***	Develop and submit to the Bank specific environmental and social procedures for contractors (supervision and enforcement mechanism, including reporting procedures for environmental, health and safety incidents/accidents)	Prior to first disbursement	Pending
6	***Land use/lease agreements***	Submit to the Bank copies of the land use / land lease agreements signed with property owners affected by the wind farm and the transmission line	Prior to first disbursement	In process
C. MONITORING AND REPORTING				
7	***Birds and bats monitoring***	Submit to the Bank the Terms of Reference for the hiring of the Birds & Bats monitoring during operation	Prior to first disbursement	Completed
8		Submit to the Bank copy of the contract for the monitoring of birds and bats during operation	Prior to start of operation's phase	Pending
9	***E&S monitoring***	Results of the monitoring plans should be included in the periodical reports to be presented to the Lenders	Ongoing	To be included in reports to the Lenders