

INTER-AMERICAN DEVELOPMENT BANK

URUGUAY

**KIYU WIND POWER PROJECT
(UR-L1091)**

Category B Project

**Environmental and Social Management Report
(ESMR)**

May 2014

TABLE OF CONTENTS

I. INTRODUCTION

II. PROJECT DESCRIPTION

III. COMPLIANCE STATUS AND PROJECT STANDARDS

IV. KEY ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS

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

VI. REQUIREMENTS TO BE INCLUDED IN THE LEGAL AGREEMENTS

APPENDIX

Photos

Environmental and Social Action Plan (ESAP)

I. INTRODUCTION

A. Summary Table

1.1

Country	Regional / Uruguay
Sector	Renewable Energy
Project Name	Kiyu Wind Power Project
Borrower	Cobra Ingenieria Uruguay S.A.
Sponsor	Cobra Instalaciones y Servicios S.A.
Transaction Type	Project Finance
Total Project Cost (in US Dollars)	Approximately US\$117.5 million
IDB A-Loan (if applicable)	Up to US\$42.2 million
Co-Lender	Co-Lender (US\$42.2 million)
Environmental Category	B
Project Team	Ana Maria Vidaurre-Roche, Project Team Leader (SCF/INF); Joana Pascual (SCF/INF); Juan Paredes (INE/ENE); Steven Collins (VPS/ESG); Jose Luis De la Bastida (VPS/ESG); Leif Weizman (LEG/NSG); Andre Averbug (SCF/PMU), Jan Weiss (SCF/SYN)

B. Background

1.2 Cobra Ingenieria Uruguay S.A., the Borrowers, are seeking financing from the IDB for the construction, operation and maintenance of a 49.2 MW wind farm (Parque Eolico Kiyu) and its associated facilities to be constructed in Paraje Barrancas de San Gregorio, a zone of high wind potential, approximately 5 km north of Kiyu and 10 km southwest of Puntas de Valdez, in the Departamento de San Jose, Uruguay (see Figure 1, which includes existing roads to be used to transport material to the project site). Several other cities are located within 15 km of the project area including: Libertad and Rafael Perazza. The wind concession area lies south of Route 1, approximately 60 km northwest of Montevideo.

- 1.3 The Project is in the process of selecting the EPC contractor who will provide all engineering, procurement and construction services, as well as the O&M contractor who will be responsible for the operation, maintenance and asset management services for the Project.
- 1.4 The estimated total cost of the Project is approximately US\$117.5 million, which will be funded through a combination of equity and debt. Along with loans from IDB and other co-lenders, the Project is seeking financing of approximately US\$84 million including US\$42.2 million from the IDB.
- 1.5 A due diligence mission was conducted by an ESG representative, Steven Collins, senior environmental specialist, (VPS/ESG), from July 26 - 27, 2013. Findings and observations gained during the mission along with information provided in the project's environmental documentation are detailed within this report.

II. PROJECT DESCRIPTION

A. Project Components

- 2.1 The "Project" consists of the construction, operation and maintenance of a 49.2 MW wind farm (Kiyu) and its associated facilities, to be constructed in a zone of high wind potential located just north of the City of Kiyu in the Departamento de San Jose, Uruguay. The Project site lies approximately 5 km north of the City of Kiyu, approximate population 3,000 individuals. The information provided below has been obtained from the EIA for the Kiyu Project and through investigations with project representatives during the due diligence site visit.
- 2.2 The Project encompasses the installation or construction of the following components: i) installation of 16 wind turbines (Vestas V112) with a nominal capacity of 3.075 MW each; ii) construction of a substation (Punta de Tigre); iii) construction of a 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 support buildings; vi) construction of a temporary batching plant; and vii) construction of approximately 17 km of maintenance and service roads within the wind concession (see Figure 2, which includes the location of the substation and wind turbines).

Figure 1. General Project Location

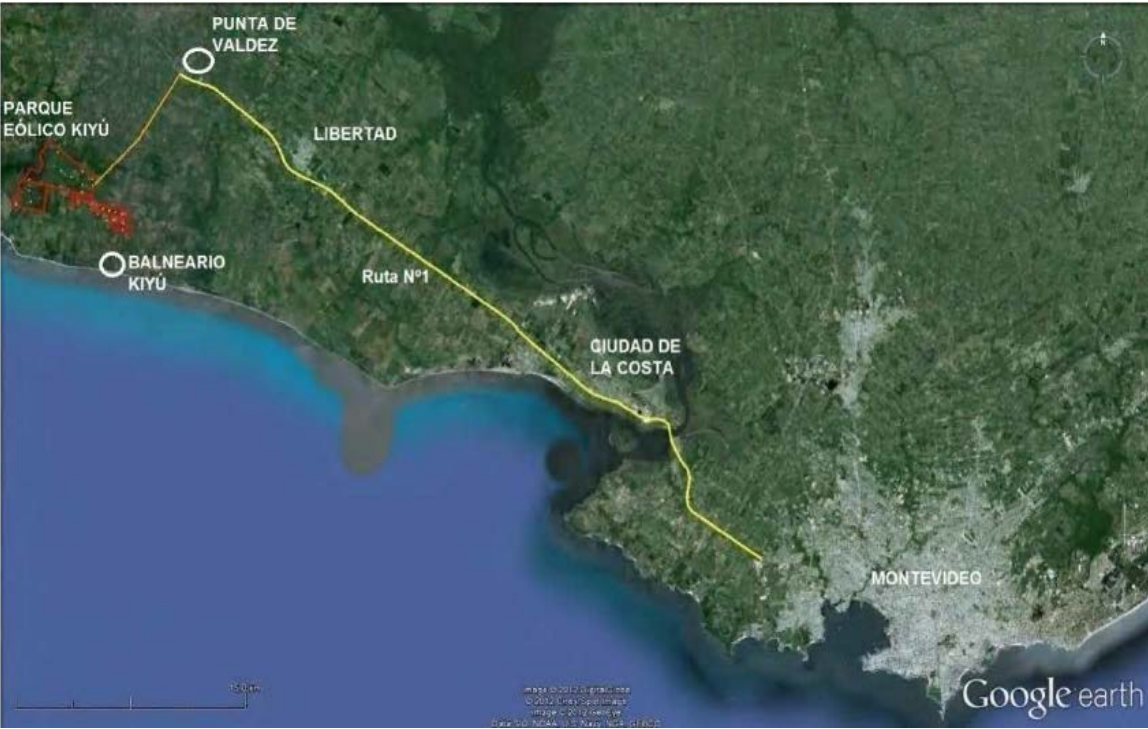


Figure 2. Project Area Map



a) Wind Turbines: The 16 Vestas V112 wind turbines to be installed on the site will have a tower height of 119 m and a rotor diameter of 109 m (see Figure 2, above, for site layout). Each rotor contains three blades and has a swept area of approximately 9,377 m². The V112 has a start-up wind speed of 3 m/s and a cut-out wind speed of 25 m/s, with a re-cut-in speed of 23 m/s. The turbines will each occupy an area of 0.12 ha for the foundation. A total of 1.92 ha will be occupied by the 16 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 1,200 m² (30m x 40m) and will include a concrete foundation roughly 9 m in diameter and 2 m deep. Concrete for the foundations will be supplied from a temporary batch plant to be constructed on site. Approximately 350 - 500 m³ of material will be excavated at each turbine site to prepare the foundation and work platform.

b) Substation: The Punta de Tigre substation will be constructed for the Kiyu project. It will be constructed by the Kiyu project team but owned and operated by UTE. The wind park substation (30 kV/150 kV) will be constructed to support the Project and will serve as the connection to the national grid. The substation will occupy an area of approximately 0.25 ha within the existing 0.9 ha substation. A security fence will be installed around the substation.

c) Transmission Line: An approximately 26 km-long 150 kV above ground transmission line will connect the Project to the Uruguayan national grid (UTE). A separate EIA was prepared for the transmission line. Negotiations with the land owners along the transmission line in order to agree land lease terms have commenced but are not yet complete. The consultation process for the transmission line was conducted by the Borrower in conjunction with the consultation for the wind farm; however, the negotiation process for the transmission line will be conducted by UTE. 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. The consultation process conducted by the Borrower for the wind project area did include the transmission line alignment and land lease agreements, when finalized, will be provided to the Bank.

d) 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 have a total length of 14.5 km and will be buried in trenches 1.2 m deep and between 0.60 m and 1.35 m wide. The alignment of the underground lines will

follow the access roads and will also contain phone and fiber optic cables as requested by the intendencia (local authority).

e) Access Roads: A total of approximately 16 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. This includes approximately 11 km of new access roads and 5 km of improvements to existing roads. The access roads will be between 5 m and 11 m wide and will remain unpaved. Rock and other material excavated during the preparation of the turbine foundations will be crushed to be used as base material for the new access roads. Magnesium chloride (bischofita), commonly used dust suppressant, may be applied to the access roads, if needed.

f) Concrete Plant: The concrete plant will be situated near the office buildings and will occupy an area of approximately 2500 m². The plant will have a production capacity of 100 m³/hour, functioning approximately 3 hours per day for a period of 27 days to complete the turbine foundations. The plant will consume water at an approximate rate of 22.5 m³/hour during its hours of operation. The plant will produce 5,648 m³ of concrete to supply the material needed to construct the 16 foundations, each requiring approximately 353 m³ of concrete.

Table 1: Project Component Information

Project Aspect	Kiyu Wind Power Project
Capacity / Turbines	49.2 MW / 16 Vestas V112 turbines
Total Wind Project Area (Disturbed Area)	Over 1100 Ha. (17 Ha, approximately 1.5% of wind concession)
Substation	Punta de Tigre substation (31.5/150kV) occupying approximately 0.25 ha.
150 kV Transmission Line	Approximately 2 km-long, 150 kV transmission line
Low-Tension Underground Transmission Lines	14.5 km, with phone and internet cables
Access Road (km)	Total of 16 km of new roads and modification of existing roads
Prefabricated units	10 units (peak during construction; will decrease after completion of main control building)
Ha of disturbance at Foundations	During construction: approximately 3.84 ha (0.24 ha/turbine) After construction: approximately 1.92 ha (0.12 ha/turbine)

Living quarters	None, workers will be accommodated in local communities
Offices / Storage	75 m ² of prefabricated buildings
Hazardous waste storage	15 m ²
Water Consumption (construction)	4,000 l/day - 40 l/person/day
Water Consumption (operations)	102 l/day - 17 l/person/day
Wastes (non-hazardous)	Construction – 140 kg
	Operation -3 kg/day
Wastes (hazardous)	Construction – 750 kg
	Operation - 0 kg
Air Emissions (CO² reduction) – Estimated	186,000 ton CO ₂ /year
Number of Workers	Construction – 70-100
	Operations – 4 - 6 on-call maintenance personnel for both facilities

B. Environmental and Social Setting

- 2.3 The Kiyu Project site is located approximately 5 km north of Kiyu and 10 km southwest of Puntas de Valdez, in the Departamento de San Jose in southern Uruguay. The area is known for its rich wind resources. Other wind power projects have identified southern Uruguay as a potential development area and additional large-scale wind farms are currently in the development stage in Uruguay. The Caracoles, Minas I, Palmatir, Carape, and Libertador projects are just a few examples of other projects in southern Uruguay.
- 2.4 According to the EIA, the wind project covers an area of approximately 1,100 ha, of which a total of 17 ha (approximately 1.5%) 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 citrus groves with several eucalyptus and pine wind breaks planted over the years apparently to protect agricultural fields from the high winds.
- 2.5 The eastern border of a protected wetland and wildlife corridor, the Arroyo San Gregorio, lies approximately 1.0 km to the west of the wind project area. The Project does not encroach upon the protected area and no construction activities will occur within it. A

bird baseline survey has been conducted in accordance with the Bank's request to conduct bird surveys during one of the two annual migration seasons. Bird and bat surveys were conducted on the project site in conjunction with the EIA. A total of 83 bird species and four bat species were identified on the Project site. None of the species encountered are protected on the UICN Red List. Several of the bird species identified are protected locally for their economic value; these include various species of ducks, quail, and dove. According to the best information available, no migratory routes cross the wind project area; a known migratory route passes much further north of the limit of the wind project area.

- 2.6 The survey methods presented in the EIA for birds, reptiles, amphibians and mammals did not appear to be adequate as they did not occur during one of the two annual migration seasons. The Borrower was asked, by the Bank, to conduct more thorough surveys for all species. In response to the Bank's request, the Borrower contracted a local consultant with experience in these types of surveys and new surveys (bird, bat, mammal, reptile, and amphibian) have been completed to Bank standards. Several additional bird species were identified on the site during the new surveys; however, none of these species are listed by the IUCN and analysis of flight patterns indicates a low risk of collision with turbine blades. Two additional bat species were also detected during the new surveys. Bat surveys did not include acoustic monitoring. The Bank will request the inclusion of acoustic monitoring during the next two sets of surveys scheduled to occur.
- 2.7 No streams or drainages 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 will be protected. Engineering design has placed the turbines and other project related infrastructure away from these sensitive areas.
- 2.8 The EIAs did not identify the project area as Critical Natural Habitat; however, the Bank's internal Decision Support System (DSS) has identified the area as Critical Natural Habitat based on information provided from NatureServe and the Nature Conservancy declaring the areas to be "Critical Ecosystems". The two sensitive habitat types include Northern Uruguay Well Drained Grasslands and areas of Prime Farmland. The protected status is based on the severity of existing threats to the habitats including loss of prime farmlands, and afforestation with non-native tree species.

Social Setting

- 2.9 The closest cities to the Kiyu Project area are Kiyu, five km to the south, and Puntas de Valdez, approximately 10 km to the northeast. The wind project area includes three property owners who maintain cattle ranch and citrus plantation properties. All three

property owners have signed land lease agreements with the project in order to place turbines within the respective properties. There are an additional 39 parcels which will be impacted by the transmission line alignment; in total, these parcels are owned by 27 individuals. UTE has completed the negotiations for land use payments to these property owners.

- 2.10 Kiyu is a town of approximately 3,000 residents and approximately 1,500 people live in Puntas de Valdez. Libertad, a city of over 10,000 inhabitants is approximately 15 km away. Kiyu and Puntas de Valdez are relatively small, tranquil cities which boast modern conveniences such as electricity, telephone, radio, television, sewers, and schools. The majority of the labor required for construction is expected to come from these cities. 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.
- 2.11 Libertad is a larger city with even more modern conveniences: better schools and healthcare facilities, entertainment, a school for special needs students, a technical university, public gardens, and a football team. Libertad and the surrounding areas are known for their agricultural and in particular, cattle ranching industries. Laborers may be sought from Libertad to work on the Project if a sufficient number of workers cannot be located in Kiyu and Puntas de Valdez.
- 2.12 The Project area itself is largely uninhabited; however, several houses, approximately five, do exist within the wind project area and another roughly 25 home sites exist in the immediate surrounding parcels. These three property owners within the Project area are cattle ranchers or citrus farmers and all three have signed land lease agreements with the Borrower. The Borrower has established a 500 meter minimum buffer zone around any house to avoid impacts from noise or the blinking affect associated with wind turbines. The closest turbine to a home site is actually located at a distance of 600 meters.
- 2.13 Another 39 parcels with a total of 21 owners will be impacted by the construction and operation of the transmission line. Under Uruguayan law, UTE is owner and operator of all transmission lines within Uruguay. UTE recently completed the process of conducting the negotiations for the land use agreements for impacted property owners along the transmission line corridor. Of the 21 property owners affected, 15 property owners representing 21 of the 39 parcels expressed opposition to the alignment of the transmission line through their lands. Currently, 16 of the 21 landowners along the transmission line have signed right-of-way agreements, five have not. In Uruguay, the government retains the right to indemnify lands in order to secure rights of way for transmission lines; it is likely the five remaining landowners will be subject to this indemnification process and will receive compensation. The Environmental License for the transmission line was issued by DINAMA in April 2014.

- 2.14 The local communities depend on agriculture and cattle ranching as the main source of income. Property owners within the wind project area live a very rural lifestyle with fairly large ranch style homes surrounded by vast grazing land. Cattle reared for meat is the primary source of income in the area; however, many land owners in the surrounding areas have citrus and olive plantations and some, in increasing numbers, are planting pine and eucalyptus plantations. All the homes in the immediate vicinity do have electricity, telephone and running water. For access to most social services residents must travel either to the neighboring cities.
- 2.15 Indigenous Peoples: There are no indigenous people living within the wind project area, nor within the surrounding communities.

C. Project Schedule and Workforce

- 2.16 Based on information provided in the EIA and during the due diligence mission, construction of the project is expected to begin in early 2014 with an estimated 12 -14 month construction period. Operations are expected to commence by mid-2015. The Project has obtained all necessary permits and licenses and is prepared to begin construction now; however, UTE has not secured the environmental license for the transmission line which has delayed the start of construction.
- 2.17 A workforce of approximately 70 - 100 people is expected. Most of the workforce, an estimated 70%, will be comprised of local workers from the neighboring communities, particularly Kiyu and Puntas de Valdez, only 5 and 10 km away, respectively. As the majority of the workforce will be local, no worker camps will be constructed on the site. Prefabricated units will be used to provide workers with changing rooms and a canteen. Due to remote monitoring capabilities of modern wind farms, it is currently anticipated that only four to six on-call staff will be required during the operations phase of the facility. These individuals will be present primarily to fulfill any maintenance operations required on equipment.

D. Alternatives 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 3 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, is

located near an existing substation and will have minimal impacts to only a few property owners.

III. COMPLIANCE STATUS AND PROJECT STANDARDS

A. Appraisal Process and Local Requirements

3.1 Uruguay Law 16.466/94 Law of Environmental Impact Evaluation and Decree 345/2005 classifies projects and defines the degree of environmental impact evaluation required by projects. The Direccion Nacional de Medio Ambiente Division Administracion (DINAMA) in Montevideo, granted the Declaration of Environmental Viability for the Kiyu Project on 31 January 2011 following a review of the required environmental documentation (Viabilidad Ambiental de Localización). Under these regulations, both the Kiyu project has been classified as a Category B project, thus requiring the preparation and submittal of an Environmental Impact Assessment (EIA). An EIA was prepared and submitted to DINAMA for approval. The environmental license for was granted by DINAMA on 14 August 2013. The EIA for the project was provided to the Bank for review. The Ministerio de Industria, Energia, y Minería (MIEM) granted permission for the Kiyu project on 17 August 2012. The Plan de Gestion Ambiental (Construcción) was approved by DINAMA on 04 October 2013. The environmental license for the transmission line was issued by DINAMA in April 2014; however the Plan de Gestion Ambiental (Construcción) has not yet been submitted.

B. IDB Safeguard Policies

3.2 The Project triggers the following directives of IDB’s OP-703 Environmental and Safeguards Policy: B.1, Bank Policies; B.2, Country Laws and Regulations; B.3, Screening and Classification; B.4, Other Risk Factors; B.5, Environmental Assessment Requirements; B.6., Consultations; B.7, Supervision and Compliance; B.9 Natural Habitats and Cultural Sites; B.10 Hazardous Materials; B.11 Pollution Prevention; and B.15 Co-Financing Operations. The triggering of B.4, Other Risk Factors, relates to processes within the project cycle which will be controlled and conducted by UTE rather than the Borrower (see Table 2 below for details). The OP-102, Disclosure of Information Policy also applies for this Project. It does not appear that any physical resettlement will occur in relation to the Project. Based on available information, the Project had been classified by the Bank as a Category B operation.

3.3 Table 2, below, illustrates the Project’s capacity to comply with IDB’s various policies and directives.

Table 2: Compliance with IDB Policies and Directives

Policy / Directive	Applicable Aspect	Compliance Rationale
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OP-703 Environmental and Safeguards Compliance		
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 full compliance with all Uruguayan laws and regulations. Land lease agreements have been made with the property owners in the wind project area and negotiations are occurring between UTE and land owners along the transmission line alignment. Environmental permits have been obtained for the Kiyu Wind Farm and are being processed for the transmission line.
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, not the Borrower. Land lease / land use contracts with impacted property

		<p>owners along the transmission line will be provided to the Bank. Currently, all three property owners on the wind farm have signed land lease agreements and 16 of the 21 property owners along the transmission line have signed right-of-way agreements.</p>
B.5 EA Requirements	Application of adequate assessment process	<p>In accordance with both Uruguayan regulations and Bank policies for Category B projects, an Environmental Impact Assessment was prepared for the project. A Declaraciones de Impacto Ambiental (DIA) was submitted to the government of Uruguay. DINAMA has issued the license for Kiyu; the license for the transmission line was issues in April 2014.</p>
B.6 Consultations	Project has undergone appropriate public consultation	<p>The project has conducted public consultation meetings with the local communities. To date, the community supports the operation. Comments from the public have revolved around employment opportunities with the project. The Project plans to continue engaging the local communities to identify social programs in need of assistance</p>
B.7 Supervision and Compliance	Internal supervision and reporting	<p>The Project's PGA 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</p>

		IDB Environmental Safeguards Unit. 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; however, is situated near a protected wetland and near regional grasslands that have been identified by NatureServe and The Nature Conservancy as critical ecosystems that are important for biodiversity conservation. Consequently, the Bank considers these habitats to be critical natural habitat. This habitat type is abundant throughout Uruguay. Since approximately 126,663 Ha of the defined critical natural habitat exists and the Project itself will occupy previously disturbed lands, the project 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 PGA 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 186,000 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	Other potential lenders, including the US Import Export Bank (EXIM), are also conducting their own due diligence exercises, in conjunction with the IDB. The Project's PGA complies with other lender's policies 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 Resettlement	N/A	No involuntary resettlement in the form of physical displacement will occur as a result of the project; however, there will be approximately 21 property owners who will experience economic displacement due to the placement of the transmission line. The negotiations for land use agreements have been conducted by UTE; however, 15 property owners were not in favor of the transmission line. UTE has since been able to agree right-of-way agreements with 16 of the 21 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.

<p>OP-102 Access to Information Policy</p>	<p>Project information disclosure</p>	<p>The Project has adequately disseminated information in the local community in radio advertisements and letters to stakeholders. A public consultation meeting has also occurred. IDB will also make relevant Project information available on its website.</p>
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C. Project Requirements and Standards

- 3.4 Cobra Ingenieria Uruguay S.A., the Borrower, is a subsidiary of Grupo Cobra who is accredited with the corporate Environmental Management System ISO 14001:2004 standards for Environmental Management Systems, as well as ISO 9001:2008 Quality Management Systems and ISO 50001:2011 Energy Management Systems. The Borrower will operate under its parent company’s Environmental Management System. Grupo Cobra has significant experience in the construction and operation of wind facilities and has multiple operations in various South American countries.
- 3.5 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, spoils management, and road safety and will describe any detailed measures required (if any) to mitigate any potential issues. The Project has also prepared a Plan de Contingencias to outline the actions to be taken in the event of a spill, accident, emergency, or other incident.
- 3.6 The Borrower is developing a project-specific Social Support Program and a Community Relations Plan. The company is currently envisioning working with local schools to provide local school children with an opportunity to visit the wind farm, both during construction and operation of the wind farm in order to learn about wind energy. In order to provide safety for visitors during construction, visitors will be confined to using an existing road which provides an excellent vantage point to observe construction activities yet provides a safe distance from any potential danger. The Project is also encouraged to identify and promote projects and programs directed at supporting and improving the lives of women and children in the area. The Community Relations Plan contains the

initial plans for the development of a Grievance Mechanism which will be implemented and tracked upon finalization of the plan.

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; and (vii) occupational health and safety hazards for the workforce. Most of these construction impacts and risk can be adequately mitigated through the implementation of appropriate management plans.
- 4.2 **Transmission Line:** UTE owns and operates all transmission lines within Uruguay and therefore, the routing, permitting, and consultation is controlled by UTE, with some cooperation with the Borrower, and follows a different regulatory process than the wind farm. This process is ongoing and as such the potential site-specific impacts are less defined. Generic potential environmental impacts and risks typically associated with the construction of a transmission line include: disturbance to habitat (flora and fauna) from clearing of the right-of-way, increased soil erosion, increased use of previously inaccessible areas, increase in heavy traffic from construction equipment, increase in dust, increase in noise, risk of collision for birds, conversion of land use with visual impacts, and economic displacement.
- 4.3 Once in operation, the potential main impacts and risks are: (i) bird and bat collision; (ii) barrier effects to movements 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

- 4.4 Potential 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; and (viii) visual impacts to surrounding residents. Most of these construction

impacts and risks can be adequately mitigated through the implementation of appropriate management plans.

- 4.5 **Transmission Line:** UTE owns and operates all transmission lines within Uruguay and therefore, the routing, permitting, and consultation is controlled by UTE and follows a different regulatory process than the wind farm. This process is ongoing and as such the potential site-specific impacts are not yet fully known. Generic potential environmental impacts and risks typically associated with the construction of a transmission line include: disturbance to habitat (flora and fauna) from clearing of the right-of-way, increased soil erosion, increased use of previously inaccessible areas, increase in heavy traffic from construction equipment, increase in dust, risk of collision for birds, and conversion of land use with visual impacts.
- 4.6 Once in operation, main impacts and risks are: (i) bird and bat collision; (ii) barrier effects to movement of birds; (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) shadow flicker caused by sunlight passing through the moving blades.
- 4.7 One of the potential risks associated with wind power facilities is bird collision. The bird field study conducted in support of the EIA likely occurred outside of the migratory seasons and registered only 83 species of birds within the wind project area (approximately 18% of the 446 bird species registered in Uruguay). Desktop studies from other nearby areas, however, indicated the potential presence of a significantly higher number of bird species in the project area, approximately 230. Additional surveys were requested by the Bank in order to provide more reliable baseline data. The project contracted a local consulting firm capable of conducting these surveys. The consultant conducted a series of field visits, from December 9-13, 2013 and February 19-23, 2014 including a section of the migration period. Surveys incorporating the migratory season detected 2,534 individuals representing 93 species (approximately 21% 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. Four of the species identified are listed as species of concern, one with IUCN and three within Uruguay: *Athene cunicularia* (IUCN Near Threatened); *Buteo swainsoni*, *Nothura maculosa*, and *Aramus guarana* (protected under SNAP – Sistema Nacional de Áreas Protegidas). 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.

- 4.8 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 implemented should monitoring results indicate high bat mortality.
- 4.9 The EIA did not identify any sensitive or protected species of amphibians or reptiles occurring within the wind project area which is feasible considering the project area consists of previously disturbed agricultural lands. It is possible that the neighboring property consisting of a protected wetland area would provide suitable habitat to a large number of amphibian species. Care should be taken during construction activities to ensure species from the wetland area do not encroach upon the construction zone. Routine environmental inspections described in the Plan de Manejo Ambiental will serve as safeguards against any potential impact to these species.
- 4.10 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 16 turbines and is not located near other known planned wind farms. In addition, it does not appear that the wind project area is crossed by any avian migratory routes. As such, the barrier effect should not be significant.

- 4.11 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, primarily citrus groves, 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.
- 4.12 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.
- 4.13 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.
- 4.14 Potential noise impacts caused by the wind turbines during operation on adjacent communities are not expected to be significant; however, there are some existing home sites and a school within the Project area and near planned turbine locations (the closest home is approximately 700 m and the shortest distance to the school is about 750 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.
- 4.15 The project is situated near a protected wetland (Arroyo San Gregorio) and near regional grasslands that have been identified by NatureServe and The Nature Conservancy as critical ecosystems that are important for biodiversity conservation. These habitats are important remnants of once expansive grasslands that are home to several globally

threatened bird species. Throughout their range, these grasslands are under substantial threat from conversion to agricultural croplands, afforestation with non-native tree species, and historically from the invasion of non-native pasture species. Consequently, the Bank considers these habitats to be critical natural habitat. This habitat type is abundant throughout Uruguay. Since approximately 126,663 Ha of the defined critical natural habitat exists and the Project itself is located on previously impacted lands, the project does not appear present a significant conversion or degradation of critical natural habitat. The Project area's current land use is agricultural lands and pastureland, eliminating the threat of conversion. In order to preserve the wind resources within the Project area, no new eucalyptus groves will be planted.

C. Social Impacts and Risks

- 4.16 **Land Acquisition and Physical Displacement:** The Project has already identified and secured 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. Land contract lease agreements have been signed with the three individual land owners (all cattle ranchers and farmers) where the turbines, substation, underground transmission lines, and access roads will be located. The compensation package is consistent with IDB policies and offers a fair payment per MW installed, as well as payments for lost production or plants removed from the property. The main transmission line (26 km of 150 kV line) has not yet been licensed by DINAMA, but is expected in early April 2014, and land lease / land use agreements are being negotiated by UTE. All but five of 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.

D. Cumulative Impacts

- 4.17 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. Although there are currently no other wind farms in the immediate vicinity, with the growing number of turbines planned to be erected in the area in the near future, the risk and concern of cumulative impacts also grows. Currently, any cumulative impact study relating to bird collisions with wind turbines, anywhere in the world, has been inconclusive due to the lack of data shared or otherwise obtained from the various wind farms in operation. Data for the monitoring efforts of this Project, as well as other projects will be helpful in determining the extent of cumulative

impacts and developing and implementing corrective measures in case the impact is found to be significant.

E. Positive Impacts

- 4.18 The Projects 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 100 workers. A preference for workers from local communities will be provided; an estimated 70% of the total workforce will be local laborers.
- 4.19 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 Kiyu project is expected to result in an estimated savings of 186,000 tCO₂/year, through the displacement of thermal power generation.
- 4.20 The Project is currently working with the community and local officials including the mayor of the nearest town to identify potential social programs which the Project can support. Preference will be given to social programs which benefit women and children. School field trips, as well as site visitations for other visitors, are envisioned for the future, both during construction and when the wind farm is in full operation to teach school children and the community about wind energy. During construction visitors will observe activities from a safe distance on an existing road which will not be used by construction equipment.

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

A. Description of Management Systems and Plans

- 5.1 The wind power plant 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 monthly 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 the Borrower to develop a good relationship with the local communities include:

- i. **Public Consultations.** The Project has already conducted 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.
- iii. **Community Relations Plan.** The coverage of this plan includes both wind farms and the transmission line. Its goal is to establish community participation mechanisms and build positive relationships with interested groups to avoid or minimize potential social conflict situations during project execution. This plan provides both a general framework and specific procedural guidance for a continuous dialogue between the local population and representatives of the company.
- iv. **Potential Social Programs.** The Borrower is in the process of identifying potential social programs to support in the area. The Project will give precedence to social programs or projects which benefit women and children in the local communities.

B. Monitoring and Supervision

5.3 This project includes different levels of supervision. The most relevant ones include (i) Internal project supervision, conducted by the Borrower's environment 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 The Borrower 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 The Borrower is currently preparing a detailed monitoring regime for the operations phase which will include surveys for birds and bats to assess the impacts of collisions to these species. The Borrower 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 annual report provided by the Borrower will detail vital information including calculated reduction of CO₂ emissions. Based on current energy production in Uruguay, the Kiyu Project, is expected to create a reduction of approximately 186,000 ton CO₂/year; the development goal is a reduction of 186,000 tons CO₂/year. Carbon reductions will be directly related to the amount of energy generated, of which, an estimated 195 GWh/yr is anticipated.

5.7 In the case of the social support programs, potential projects or programs must be identified through consultation with local authorities and community groups. Following project identification, a chronogram of activities will be developed which will include a list of components, specific activities for each component, and expected results. Results of the social programs will be reported in the semi-annual environmental and social monitoring reports.

VI. REQUIREMENTS TO BE INCLUDED IN THE LEGAL AGREEMENTS

6.1 Based on the ESDD conclusions, the conditions described below are required to be fulfilled for the Project prior to loan approval/financial close and throughout the life of the loan, in form and substance satisfactory to IDB:

Throughout the Life of the Loan

6.2 The IDB will require within its Loan Agreement that the Project and each Project party (Sponsor/Borrower/Company) and other Project/Environmental parties, including construction companies and operators, and 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 regulatory requirements of Uruguay.

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 Disaster Risk Management Policy (OP-704) and the Disclosure of Information Policy (OP-102), the Involuntary Resettlement policy (OP-710), the Operational Policy on Indigenous Peoples (OP-765) 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

- 6.3 The Project will develop and implement a project specific ESMP to assess and mitigate the negative impacts associated with the Project. 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.
- 6.4 The Project will 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.
- 6.5 The Project will conduct community engagement activities with local authorities and community groups to identify and implement potential social programs. The Project will look specifically to support social programs directed at benefitting local women and children.
- 6.6 The Project will develop and submit to the Bank an Emergency Response Plan / Contingency Plan / Evacuation Plan.
- 6.7 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 Each Disbursement

- 6.8 The Sponsor/Borrower/Company 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

- 6.9 The Borrower shall develop and implement a grievance mechanism that corresponds to best industry practices (IFC Good Practice Note, Addressing Grievances From Project-affected Communities, dated September 2009) for the public, including those affected by the transmission line.
- 6.10 The 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 Company shall provide evidence of supervision and oversight of the contractors.
- 6.11 The Project shall present report detailing the remediation and protection of the various cultural sites and present final clearance from Government to IDB. The report shall also detail the establishment of a Chance Find Procedure to be implemented throughout the construction period.

Prior to Operations

- 6.12 The Project will 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.
- 6.13 The project will 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 two 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.
- 6.14 The IDB or an Environmental and Social consultant appointed by the IDB shall certify compliance with all environmental and social requirements of the loan agreement including any Corrective Action Plans if applicable.

Prior to Operations

6.15 The Project will implement a Bird and Bat Monitoring Plan in accordance with the IDB's protocols for bird and bat monitoring. For Category B projects, the protocol requires two years of monitoring, which the IDB may choose to extend based on the results of the surveys.

PHOTO LOG – Kiyu Wind Power Project



Figure 1: Turbine location in orange tree grove



Figure 2: Turbine location in lemon tree grove



Figure 3: Turbine location in pasture



Figure 4: Turbine location in pasture



Figure 5: Current condition of access road



Figure 6: Nearby protected wetland - Arroyo San Gregorio

1.1 Environmental and Social Action Plan (ESAP)

The following table sets out specific project related actions for inclusion in a Project ESAP.

This ESAP sets out actions to support the project to demonstrate compliance with the Equator Principles (EPs) and IDB Guidelines. Under the EPs, as a Non-Designated Country, projects in Uruguay are required to demonstrate compliance not only with host country legislation but also applicable IFC Performance Standards on Environmental and Social Sustainability (IFC PSs) and the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines) (EP III, Principle 3, point 1).

This ESAP should be agreed between the Lenders and the Project Company to ensure both parties are aware of the obligations imposed by the ESAP and accept the obligations therein. Implementation of the actions is the responsibility of the Project Company although they may decide to enlist the support of specialist consultants to discharge the action or to transfer obligations to the EPC contractor through contractual documentation. It is recommended that the ESAP is appended to loan documentation as a condition of financing.

Table 1.1: ESAP - 06 August 2014

#	Action	Responsibility	Indicator of Task Completion	Completion Date
1	Develop a Stakeholder Engagement Plan (SEP).	Cobra	SEP approved by Independent Engineer (IE).	Prior to mobilisation on site.
2	Develop a Grievance Mechanism (GM) (to include a defined procedure for dealing with noise and shadow flicker grievances).	Cobra	GM approved by IE. Disclose GM to local community via public meeting / project brochure.	Prior to mobilisation on site.
3	Undertake supplementary baseline noise monitoring (daytime and night-time).	Cobra	Supplementary baseline noise monitoring report.	Prior to mobilisation on site.
4	Complete one year baseline bird and bat monitoring and update monitoring strategy to include acoustic monitoring for bats.	Cobra / LK Sur (on-going)	Final baseline bird and bat report.	Due for completion in December 2014.
5	Appoint dedicated EHS professional(s) on behalf of Cobra to oversee implementation of EHS and labour matters on site, oversee EPC contractor and to coordinate implementation of the SEP; for both the Project and OHL.	Cobra	Organogram showing positions to be hired for approval by IE. Recruitment of individual(s).	Prior to first disbursement. Prior to mobilisation on site.
6	Develop an addendum to the wind farm Construction Environmental Management Plan (CEMP) prepared under national law to include additional requirements to meet international standards including <i>inter alia</i> : <ul style="list-style-type: none"> - Management of cumulative impact (traffic, community impacts) - Security 	Cobra	CEMP addendum approved by IE. Disclose to EPC contractor.	Prior to mobilisation on site.

Extract from ESDD Report REV C 06 August 2014

#	Action	Responsibility	Indicator of Task Completion	Completion Date
	<ul style="list-style-type: none"> - Labour policy statement - Community grievance mechanism. 			
7	Develop CEMP for the overhead transmission line (OHL).	Cobra	OHL CEMP (Cobra may wish to incorporate into the wind farm CEMP for their internal purposes and for informing the EPC contractor). Disclose to EPC contractor.	Two months prior to the start of OHL construction.
8	Collect labour statistics during construction phase and audit EPC contractor (and sub-contractor) labour practices against requirements of national law and IFC PS2.	Cobra	Labour statistics to be reported in construction progress reports. Labour audit.	Quarterly during construction. Within three months from the start of construction.
9	Require EPC contractor to provide temporary barriers to protect the San Gregorio marshes from construction works around WTGs 01, 12 and 13.	Cobra	Evidence / photographs in relevant construction progress reports that temporary protective barriers have been set up around WTGs 01, 12 and 13.	Prior to start of site clearance works at WTGs 01, 12 and 13.
10	Prepare a tree reforestation plan (once tree cutting requirements are confirmed).	Cobra	Reforestation plan.	Three months prior to substantial completion.
11	Develop and implement an Operational Environmental Management Plan (OEMP) in line with national and international requirements, including <i>inter alia</i> : <ul style="list-style-type: none"> - Operational environmental monitoring methodologies - GM specifically addressing potential operational impacts. 	Cobra	OEMP approved by DINAMA and IE.	Three months prior to the start of operation.
12	Obtain AAO (operational environmental authorization) for wind farm.	Cobra	AAO authorisation issued by DINAMA.	Prior to the start of operation.
13	Define operations bird and bat monitoring methodology for the first 3 years of operation with an option to extend monitoring depending on the findings.	Cobra / LK Sur (on-going)	Operations bird and bat monitoring plan approved by IE. Annual bird and bat monitoring reports.	One month prior to the start of operation. End of year 1, 2 and 3.
14	Define operations noise monitoring methodology for the first 3 years of operation with an option to extend monitoring depending on the findings.	Cobra	Noise monitoring plan approved by IE.	One month prior to the start of operation.
15	Define operations shadow flicker monitoring and mitigation plan.	Cobra	Shadow flicker monitoring and mitigation plan approved by IE.	One month prior to the start of operation.
16	Implement an adaptive management strategy to address impacts to bird and bats based	Cobra	Bird and bat adaptive management plan.	To be confirmed after each year of monitoring.

Extract from ESDD Report REV C 06 August 2014

#	Action	Responsibility	Indicator of Task Completion	Completion Date
	on outcome of operations monitoring.			