

EURUS WINDFARM – MEXICO



Figure 01: General image of the project
Source: ACCIONA Energía

Arianna M. Galán Montás prepared this case study under the supervision of Cristina Contreras ENV-SP and Judith Rodriguez as part of the Harvard-Zofnass program directed by Dr. Andreas Georgoulis by initiative of IDB for the purposes of research and education. **Editing and Proofing:** Laurel Schwab and Anthony Stahl.

Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective project design or implementation.

Copyright © 2014 by the President and Fellows of Harvard College. Permission is granted for use for nonprofit education purposes for all of the work, with attribution, except for third party materials incorporated in the work which may require permission from the authors of such material. For permission to use this work in other circumstances, write to Dr. Andreas Georgoulis, Harvard Graduate School of Design, 48 Quincy Street, Cambridge, MA 02138.

The authors would like to thank Ana Maria Vidaurre-Roche member of IDB for her leadership role in the IDB Infrastructure 360 Awards Project, and Verónica De Parres Fong and Claudia Toledo from ACCIONA Energía for their input; this case would have not been possible without their contribution.

1. PROJECT DESCRIPTION & LOCATION

EURUS is a wind farm located in La Venta, a windy region in the Isthmus of Tehuantepec that is part of the Juchitán de Zaragoza municipality in the state of Oaxaca, Mexico. The project was developed as part of the commitment of Cementos Mexicanos S.A. (CEMEX) to reduce its electricity costs in Mexico by 30% while preventing CO₂ emissions through the generation of emission-free electricity to be used in the Mexican electricity grid. The project is currently in operation as of 2009 and is composed of a 48.24 hectare site with 167 wind turbines of 1,500 kW each, a 230 kV and 19 km long line connecting to the CFE transformer, a wind farm control house, and offices. The wind farm generates 250.5 MW of energy and is expected to produce 989.5 GWh of renewable energy per year with a capacity factor of 45.1%. This will also prevent the emission of 600,000 tons of CO₂ per year. Currently, the use of wind power in Mexico is restricted to some small plants having a total capacity of 2 MW. EURUS is the largest wind farm in Mexico, one of the largest in the world, and the second largest wind farm registered under the Mecanismo de Desarrollo Limpio of United Nations.¹

EURUS was developed by EURUS S.A.P.I. de C.V., a company that is property of CEMEX, and was established with the objective of promoting renewable energy projects, becoming competitive with the energy price of cement plants and other industrial plants. EURUS S.A.P.I. de C.V. is a self-consumption entity, meaning that the shareholders will consume the energy generated by the wind farm. The total capital of the company is divided into 500 shares, with TEG Energía, S.A. de C.V., a subsidiary of CEMEX, holding 498 shares.² ACCIONA S.A., a Spanish enterprise subsidiary of the company, was responsible for the construction of the wind farm, utilizing their own technology for the wind turbines. The company is also currently responsible for the operation and maintenance of the wind farm. The expected investment of the project was of \$397,668,750 USD and no public funding is used for the project activity.³ Given that the electricity price for cement plants is 7% lower than the standard tariff by the Comisión Federal de Electricidad (CFE), the project is expected to generate an annual income of \$67,940,629 USD.⁴

The project was divided into three phases: site preparation, construction, and operation. The site preparation phase began in 2005 and included community outreach as well as the design and development of the project, including viability, environmental and economic studies, and documentation.⁵ The construction phase started in March 2008 and the project began

¹ EURUS, S.A.P.I. de C.V., *Plan de Manejo Social Integrado*, México, 7.

² *Clean Development Mechanism Project Design Document Form*, 2006, 3-4.

³ EURUS, S. A. P. I. de C. V., *Manifestación de Impacto Ambiental (MIA)*, (La Venta, México, 2006), 17.

⁴ *Clean Development Mechanism Project Design Document Form*, 2006, 12-13.

⁵ EURUS, S.A.P.I. de C.V., *Plan de Manejo Social Integrado*, México, 7.

commercial operation the following year. The project was built on land leased from private landowners for at least 30 years and it is expected to have a minimum operational lifespan of 20 years.

The energy sector in Mexico plays an important role in the country's future economic development. The availability of energy sources is indispensable for the expansion of profits and productive activities. In the last ten years, national consumption of electricity has seen a median growth of 5.6%.⁶ At the same time, the country has acknowledged that world energy generation depends highly on fossil fuels, estimating that by 2020, dependence should be reduced by 7% while the renewable energy sector is expected to grow to represent 20% of total energy generation. On December 21, 2013 a national energy reform was put into place, including the reform of articles 27 and 28 of the Mexican Constitution and the formulation of 25 new secondary laws in the energy sector. Among these, the Ley de la Industria Eléctrica enables energy-generating companies such as ACCIONA to commercialize their energy production by supplying to the electrical central stations in Mexico, while the Ley de Transición Energética establishes requirements to meet international goals for energy generation from renewable sources, setting up incentive mechanisms to further promote renewable energy generation in Mexico.⁷

The area in which the project is located, Juchitán de Zaragoza region in Oaxaca, is classified as the area with the most potential to generate wind energy in the world, given that the terrain is planar with a stable and dominant wind direction and power classes of 4,5,6, and 7.⁸ Taking into account the realities of the energy sector nationally and worldwide, and the potential that the Oaxaca region has for wind energy generation, the state of Oaxaca has devised a sustainability plan and legislation encouraging the development of wind farms such as EURUS in the area. The sustainability plan, Plan Estatal de Desarrollo Sustentable 2004-2010, calls for further promotion of renewable source energy generation to address the current lack of energy supply from the main power grid as well as the fact that the economic activities in the area represent only 11.5% of the electricity users, yet they consume most of the energy generated (61.5%). The state law also seeks to regulate the construction and modification of wind farms in the area, further incentivizing companies such as CEMEX to partake in wind energy generation to supply their energy needs while preventing CO₂ emissions.

The location proved to be ideal for the development of this wind farm due to the speed and quality of the wind resources from the Pacific Ocean and the Gulf of Mexico, with speeds ranging from 75 km/h to 200 km/h, as well as the presence of already existing high voltage lines

⁶ EURUS, S. A. P. I. de C. V., *Manifestación de Impacto Ambiental (MIA)*, (La Venta, México, 2006), 6.

⁷ ACCIONA Energía, *Nota Reforma Energética 15*.

⁸ EURUS, S. A. P. I. de C. V., *Manifestación de Impacto Ambiental (MIA)*, (La Venta, México, 2006), 9.

on site, making transmission more feasible.^{9,10} The project site land is designated as agricultural and livestock land. The habitat was previously modified by the agricultural activities prevalent in the area, and the project has not produced any additional alterations or destruction of habitats. The vegetation that exists on site is of irrigated agriculture and some remnants of deciduous forest with secondary vegetation. The project has not required the involuntary displacement of population nor has it had any impact on local cultural heritage.¹¹ The possible impacts to be mitigated by EURUS through its Plan de Manejo Social Integrado include the temporary loss of land use for the wind turbines and new access routes developed (an area of 650 m²), temporary access limits to terrain while transportation routes are improved, negative impacts from construction including the presence of machinery, production of dust, and presence of temporary workers, and possible noise generated from wind farm operation, among others. Nonetheless, the development of the project will generate many important benefits for the community of La Venta. Aside from reducing the demand of electricity to be supplied by the Mexican power grid and preventing the emission of 600,000 tons of CO₂ per year, EURUS has sought to develop a close relationship with the community of La Venta. The project team carefully assessed community needs and developed the Plan de Inversión Comunitaria, to encourage sustainable growth and development in the area through initiatives in the areas of environment, education, community infrastructure, entrepreneurship and productivity.

2. APPLICATION OF THE ENVISION RATING SYSTEM

The Envision™ system is a set of guidelines that aid in optimizing the sustainability of an infrastructure project during the planning and preliminary design phases, as well as a means to quantify the relative sustainability of the project. In this case study, the infrastructure to be assessed is the wind farm EURUS, located in La Venta, Mexico.

Envision consists of 60 credits grouped into five categories: Quality of Life, Leadership, Resource Allocation, Natural World, and Climate and Risk. Each credit pertains to a specific indicator of sustainability such as reducing energy use, preserving natural habitat, or reducing greenhouse gas emissions. Those credits are rated on a five-point scale referred to as a ‘level of achievement’: ‘improved’, ‘enhanced’, ‘superior’, ‘conserving’, and ‘restorative’. Evaluation criteria are provided to determine if the qualifications for each level of achievement have been met for a particular credit. In each of the five categories there is a specific credit called “Innovate or exceed credit requirements”. This is an opportunity to reward exceptional

⁹ *Clean Development Mechanism Project Design Document Form*, 2006.

¹⁰ EURUS, S.A.P.I. de C.V., *Plan de Manejo Social Integrado: Proyecto Eólico EURUS*, (México), 7.

¹¹ EURUS, S. A. P. I. de C. V., *Manifestación de Impacto Ambiental (MIA)*, (La Venta, México, 2006), 17-18.

performance that applies innovative methods within the subjects that Envision evaluates.

The criteria for the levels of achievement vary from credit to credit, but generally an ‘improved’ level of achievement is awarded for performance that slightly exceeds regulatory requirements. ‘Enhanced’ and ‘superior’ levels indicate additional gradual improvement, while ‘conserving’ often indicates performance that achieves a net-zero or neutral impact. ‘Restorative’ is the highest level and is typically reserved for projects that produce an overall net positive impact. The Envision system weighs the relative value of each credit and level of achievement by assigning points. Credit criteria are documented in the Envision Guidance Manual, which is available to the public on the ISI¹² and Zofnass Program¹³ websites.

3. QUALITY OF LIFE CATEGORY

Envision’s first category, Quality of Life, pertains to potential project impacts on surrounding communities and their respective wellbeing. More specifically, it distinguishes infrastructure projects that are in line with community goals, clearly established as parts of existing community networks, as well as consider the long-term community benefits and aspirations. Quality of Life incorporates guidance related to community capacity building and promotes infrastructure users and local members as important stakeholders in the decision making process. The category is further divided into three sub-categories: Purpose, Wellbeing, and Community.

Purpose

The Purpose subcategory addresses the functional assets of communities such as growth, development, job creation, and the general improvement of quality of life. Positive results from infrastructure projects can include community education, outreach, knowledge creation, and worker training.

From the beginning of the project, EURUS developed a close relationship with the community of La Venta through the organization of meetings, surveys, and interviews with both residents and local authorities. The project team developed a study of the area called the Plan de Manejo Social Integrado, where they outline needs, opportunities and issues of each community (La Venta and its surrounding municipalities) at a regional and local level, as well as in reference to the EURUS project. Out of this initiative it was determined that the main need of the area was the improvement of community services and infrastructure. A Plan de Inversión Comunitaria was then developed, where EURUS stated its investment in developing La Venta into a self-

¹² www.sustainableinfrastructure.org

¹³ www.zofnass.org

sufficient community economically, socially, and environmentally.

The project is stimulating sustainable growth and development through its initiatives stated in the Plan de Inversión Comunitaria. The program focuses on four categories: environment, education, community infrastructure, and productive projects. Environmentally, the project underwent reforestation and waste-management efforts with the community as well as the installation of domestic wind turbines to provide communities in need with access to energy. In terms of education programs, a Masters in Eolic Energy was developed in association with Universidad del Istmo (UNISTMO) to create specialized professionals through a series of technical courses and workshops at no cost, workshops for sewing and cooking were imparted to promote self-employment, and campaigns for awareness and prevention of uterine diseases and psychological assistance were instituted in the community. Infrastructure was developed to improve communication around the project site through the improvement of roads and walkways. The project also pioneered the construction of a community center and a sports facility to enhance the quality of public space and community integration. Finally, another important action has been the development of micro-enterprise initiatives to encourage business in the area.

EURUS is developing local skills and capabilities in La Venta, Mexico first by offering employment opportunities to local residents, who were trained to work in the operation and maintenance phases of the project at the same time that local farmers can keep the farming activities in the project location; and second, through its initiatives in the areas of education and productive projects in the Plan de Inversión Comunitaria. These include educational programs fostering self-employment, micro-enterprise initiatives, and specialized eolic energy programs to develop professionals in the area.

Community

The Community subcategory addresses issues related to comfort, health and mobility of local communities, as well as project workers. Safety is placed as an integral part of the planning process and promotes the expansion of alternative modes of transport.

The development of EURUS has facilitated the continuation of agricultural activities on site, allowing the community of landowners to maintain their economic activities while generating an additional income from property rent.

In an effort to mitigate the impact of noise generated by the project, a noise study was developed by Equilibra where sources and levels of noise generated by the wind turbines were

identified spatially.¹⁴ No sources of sound emitting levels higher than the maximum delineated by the law were found during the day or night. Ongoing monitoring has been implemented as well as part of an effort to interpret the movement of birds in the area particularly at night.

Site accessibility and wayfinding were also improved through the development of internal access roads and improvement of perimeter roads. As part of the project, EURUS developed a road network allowing for access and communication between the generators. The roads providing access to the site were upgraded to withstand heavy transportation and prevent the need for constructing additional roads. Appropriate drainage was built in to all communication routes to prevent deterioration due to accumulation of water. During construction, temporary routes were habilitated for preventing the disruption of vehicular, animal, and human traffic to surrounding territories.

There is opportunity for improvement in this subcategory by considering health and safety implications of using new materials, technologies, or methodologies above and beyond meeting regulatory requirements for construction risks.

Wellbeing

The Wellbeing subcategory covers the visual and functional impacts of infrastructure projects on their immediate surroundings. Projects are encouraged to utilize innovative ways of integrating into the local community without perturbing its character and natural features.

The design of EURUS makes sure to avoid the areas specified in the study as having cultural and historic value. The Instituto Nacional de Antropología e Historia (INAH) analyzed the project plan drawings and technical specifications in order to determine the presence or absence of historical and cultural resources at the project site. They identified 16 areas within the boundary of the project; 4 of which shall be preserved and protected from excavation, leveling, and construction within a surrounding 15 m radius.¹⁵ The study determined archaeological and historical vestiges on the surface of these areas - including ceramics and walls of previous settlements - which were all taken into account when designing the project.

As part of the Plan de Inversión Comunitaria, EURUS led the design and construction of a community center, the Centro Comunitario Ecoeficiente La Venta, and the restoration of a soccer field for the community. The center was meant to provide a physical space to promote social, economic, and environmental well-being in the area through training and partnership with specialized institutions for the creation of self-employment projects, while the soccer field

¹⁴ *Estudio de Ruido Metodología*, 3-5.

¹⁵ Instituto Nacional de Antropología e Historia, *Vestigios*. Oaxaca, (México, 2006), 3.

enabled the promotion of recreational and collaborative activities in the area.

The project was carefully designed in order to maintain the local character of the natural environment in which it is located, as exhibited in their Manifestación de Impacto Ambiental (MIA-P) and subsequently their Plan de Vigilancia Ambiental (PVA). On the other side no information specifies the importance of the preservation of the views and the local landscape surrounding the project. This creates an opportunity for improvement through a more comprehensive assessment in this area.

4. LEADERSHIP CATEGORY

Leadership evaluates project team initiatives that establish communication and collaboration strategies early on, with the ultimate objective of achieving sustainable performance. Envision rewards stakeholder engagement as well as encompassing a holistic, long-term view of the project's life-cycle. Leadership is distributed into three sub-categories: Collaboration, Management, and Planning.

Collaboration

The Collaboration subcategory addresses the importance of including input from a wide variety of stakeholders to fully understand synergies, savings, and opportunities for innovation. This type of collaboration necessitates a new kind of leadership and commitment from the project team as well as new ways of managing processes.

ACCIONA, the operator of the project, has emphasized sustainability as a core value in their work. As stated in their Política de Sostenibilidad, ACCIONA is committed to sustainable development through the creation and management of energy, water, and service infrastructures and actively contributing to social, environmental, and economic community well-being.¹⁶ Through this document, they have specifically outlined the company's principles in regards to sustainability; especially the importance of integrating sustainability across all stakeholders including the company, clients, suppliers, and involved communities.

The project has elaborated a Sustainability Management System after analyzing and establishing goals, objectives, and policies that address the full dimensions of sustainability. A detailed Environmental Management Plan, an Integrated Social Management Plan, as well as documents showcasing the plans and programs put in place and their verification throughout project development demonstrate that environmental and social performance considerations have been fully addressed. However, roles and responsibilities within the organization and the

¹⁶ ACCIONA Energía, *Política de Sostenibilidad*, (Madrid, Spain, 2013), 1.

project team need to be specified to enable the authority of the parties involved to affect change to be validated and made sufficient.

The specific stakeholders and their relative responsibilities during each phase of the project have also been defined by the project team. A system of communication and responsibilities between these departments - including the Departments of Business, Energy Resources, Environment, Projects and Civil Engineering - was developed following a model of traditional project delivery system where team members work as independent entities and focus on delivering their portion of the project, occasionally in collaboration with another team. However, a more multi-disciplinary approach with a closer collaboration from all the parties involved from early stages will guarantee a better outcome of the project. Ultimately the proof of a perfect synergy between the parties involved will be a risk/reward sharing agreement as part of the contract signed among the project owner and project team. Nevertheless, the project has demonstrated stakeholder involvement in some other ways. EURUS initiated contact with the community of La Venta in 2006 at the beginning of the pilot program with the Comisión Federal de Electricidad (CFE) of Mexico. Various meetings were arranged with property owners on site and in surrounding affected areas to discuss the project and reach agreements for land lease and compensation. Other programs providing for stakeholder involvement include a complaint management plan, a monitoring program, and a consultation program with the community for the construction and operational phases. However, no evidence of the ways to integrate the community feedback into the project was provided.

Management

The Management subcategory covers how a broader and more comprehensive understanding of the project can allow the team to see and pursue synergies between systems, either within the project or among larger infrastructure systems, leading to new ways of managing the project while increasing sustainability and useful life.

In the Contrato de Usufructo Parcelario, EURUS stipulates its commitment to the landowners to preserve the existing infrastructure on site and to improve the existing road system within it. This includes ensuring that the operational needs of the wind farm do not affect the natural state and use of the area's soil. As part of this commitment and the efforts to integrate new infrastructure with the existing one, EURUS renovated the existing roads on site and facilitated the construction of other roads to enable circulation and proper drainage within the project site. However, there is no evidence of further integration outside of the main focus on the project. The establishment of synergies beyond the project main interests through the assessment of existing community physical infrastructure, or even designing the project to incorporate the restoration of these communities as part of a larger strategic plan, will provide

a more sustainable outcome.

No documentation was provided indicating the identification, assessment, and use of unwanted by-products from nearby facilities. There are opportunities to conduct a more detailed analysis to obtain by-products or discarded materials and resources from nearby locations.

Planning

The Planning subcategory considers how taking a long-term view of the project can also greatly increase its sustainability. This approach necessitates the understanding of planning regulation to avoid pitfalls and plan effectively for its future.

ACCIONA Energía has developed a report on the long-term maintenance of the project, specifying maintenance instructions, security and risk prevention, and corrective and preventive maintenance of wind turbines and high tension cables.

The project also identifies and assesses the laws, standards, regulations, and policies associated with the development of the project in regard to quality, safety, and the environment. ACCIONA has created a database outlining each law, its application, specific information on articles and mandates, and the measures taken by the project team to comply to each of these indicating the degree of completion that the project has achieved thus far. After completing this analysis there is no evidence of legislation that unintentionally creates barriers to implementing sustainable practices into the project.

The largest area of opportunity within this category is the identification and integration of features that will allow the team to extend the useful life of the project creating a more durable and resilient infrastructure. This can also be achieved by enabling easy reconfiguration of the project and refurbishment for alternative future uses.

5. RESOURCE ALLOCATION CATEGORY

Resource Allocation deals with material, energy, and water requirements during the construction and operation phases of infrastructure projects. The quantity and source of these elements, as well as their impact on overall sustainability, is investigated throughout this section of the Envision rating system. Envision guides teams to choose less toxic materials and promotes renewable energy resources. Resource Allocation is divided into three subcategories: Materials, Energy, and Water.

Materials

The Materials subcategory seeks to place the minimization of the total amount of material used as a primary consideration for infrastructure projects. Minimizing material reduces the amount of natural resources that must be extracted and processed, as well as the energy involved in production and transportation.

The project has re-used all excavated materials on site. EURUS compiled a detailed report specifying the dimensions, characteristics, and process involved with preparing the site for the installation of the wind turbines. The soils that were removed as part of the initial preparation of the project site were re-utilized at the end of the project during the environmental restoration phase for the areas of temporary occupation. For areas that required excavation for the foundations of the structures and wind turbines as well as drainage work, the volume of soils removed (approximately 60,000 m³) was later re-utilized for the formation of embankments in other areas of the project. EURUS has also made efforts to divert waste from landfills. In the document *Manejo y Disposición Final de Residuos*, ACCIONA provides an inventory of all hazardous and non-hazardous waste generated during the construction and operation phases of the project. Each waste type is classified according to the provenance and is disposed accordingly. One example of this is the waste generated during excavation and cleaning. This will be incorporated into the soils on-site, leftover wood will be reutilized in the project when possible and then donated to the community and/or deposited in authorized landfills, metal will be reutilized, donated, and sent to recycling centers. The remaining waste will be either donated or disposed of in designated centers in the area. These procedures reduced the amount of waste diverted to landfills and increase the efficiency on the material usage.

ACCIONA Energía has developed detailed guidelines indicating their ethic principles and commitments as a company regarding the selection of suppliers, contractors, and collaborators. Among the parameters indicated, these should follow ACCIONA Energía's sustainability principles and standards for quality and environment. However, it is recommended to put in place best practices or policies that promote the collaboration of suppliers that incorporate sustainability policies into their companies as well as to set up a series of metrics to demonstrate how these commitments are reflected, becoming an active performance tool that can be constantly reported and updated to external and internal stakeholders.

The project could develop a life-cycle energy assessment to estimate the net embodied energy of the project materials, enabling energy saving compared to industry norms through material selection.

Energy

The Energy subcategory addresses the importance of reducing overall energy use - particularly from non-renewable fossil-fuel sources - which are already becoming scarce.

The project generates a net positive amount of renewable energy. EURUS is a wind farm consisting of 167 wind turbines of 1,500 kW each, associated control facilities, and a 230 kV and 19 km long line connecting to the CFE transformer. The wind farm generates 250.5 MW of energy and is expected to produce 989.5 GWh of renewable energy per year.

To guarantee the most efficient energy production, EURUS has developed a long-term monitoring plan where it obtains monthly checks from power meter equipment installed in their substation. The monitoring of the power generation is done through official letters issued by the Comisión Oficial de Electricidad, CFE, at the beginning of every month. Based on the results of the monitoring plan, EURUS established a methodology for calculating impact on baseline net greenhouse gas emissions resulting from electricity generation in fossil fuel fired power plants.

Water

The Water subcategory aims to emphasize the importance of reducing overall water use, particularly potable water, amid the changing climate and increasing population that places future water security at risk. Monitoring and studying water availability as well as looking for alternative water resources are possible directions to emphasize.

The design of the project will protect the availability of fresh water in the area. For all phases, including existing operational phase, EURUS does not require any water consumption, with the exception of potable water and sanitary use. The project includes a comprehensive drainage system and runoff controls associated with the development of new embankments to mitigate any possible changes that the project design might present to the flow of water on site, and therefore, the availability of fresh water in these waterways.

There is no documentation indicating the reduction of overall potable water consumption or the promotion of the use of greywater, recycled water, and stormwater to meet water needs. In order to control the water use in the long term it is recommended to implement programs to monitor water systems performance during operations or the project's impact on receiving waters.

6. NATURAL WORLD CATEGORY

Natural World focuses on how infrastructure projects may impact natural systems and promotes opportunities for positive synergistic effects. Envision encourages strategies for conservation and distinguishes projects with a focus on enhancing surrounding natural systems. Natural World is further divided into three sub-categories: Siting, Land and Water, and Biodiversity.

Siting

The Siting subcategory addresses the fact that infrastructure should be sited to avoid direct and indirect impacts on important ecological areas. Projects should avoid areas of high ecosystem value or that serve as diverse habitats. Previously developed or disturbed land is ideal for preventing further damage to that environment, improving land value, and remediating contaminated brownfields.

EURUS is being developed on a site with no prominent elevations or depressions and no natural protection areas. The project is located in flat land and its surroundings correspond to a cumulative and erosive floodplain, and according to the Atlas Regional del Istmo de Tehuantepec from the Instituto de Geografía de la Universidad Nacional Autónoma de México, there are no ecological systems or prime habitats located on-site or within specific distances of the developed area. The current land use of the project site is of agricultural and livestock type, therefore not preserving greenfields as it is developing within land designated for agricultural use. Furthermore, since the land was altered through this agricultural use, the project is not inducing any additional alterations or destruction of the habitat. There are temporary farmlands, pastures, small areas of deciduous forest, and isolated shaded areas for cattle on site. Since the project installation requires sufficient space between wind turbines to prevent any interference with air flux, agricultural activities are able to continue within the site.

The area where the project is located belongs to the hydrological region of Tehuantepec, basin of Laguna Superior e Inferior, where there are bodies of water that receive their water from the surface currents of Los Perros and Espíritu Santo. The rivers Río de los Perros and Espíritu Santo, located to the east and west of the project respectively, will not be affected by the project as it does not require any consumption of water nor modification of water bodies. However, there could be adverse impacts from flooding with the introduction of paved surfaces on site. As part of the site preparation, the project has identified four zones of four different types of embankments, each with a determined slope to facilitate the exit of water and prevent erosion by rain water currents. Drainage was also installed to facilitate this process. This drainage system consists of PVC tubes with a 500 mm diameter working to collect water on the ditches along the site roads. It is recommended that performance measurements are put in place in order to assess how these interventions perform post construction.

Land & water

The Land and Water subcategory calls for minimal impact on existing hydrologic and nutrient cycles, paying particular care to avoid the introduction of contaminants through stormwater runoff or pesticides and fertilizers.

Although the development of the project can modify the flow of stormwater on site since it requires the movement of topsoils for the formation of platforms and foundations, the developed embankments have a slope that facilitates the exit of water guaranteeing a sustainable stormwater management. The slopes of the different embankments were designed in a way that would prevent the erosion of soils by water current.

According to substances that could potentially affect surface and groundwater quality waste and chemicals have been evaluated. According to the residues generated on site, these are mainly the result of the agricultural and livestock activities that take place on the area. The generation of wind energy will not produce significant waste. The construction phase and subsequent maintenance process will generate minimal waste. A waste management and disposal plan has been developed for the project outlining waste types (hazardous and non-hazardous) according to the different phases of the project. Each generated waste is catalogued in terms of what process it was a result of, what it is affecting, and how to dispose it. Efforts to re-utilize, recycle, and re-locate waste off-site to prevent contamination of the ground are visible throughout the plan. However, no documentation specifies that a long term water quality monitoring system has been established to calculate water quantity and quality and monitor any impact that the project has on the existing surface water on site. According to other substances that can also affect water quality, the reduction of pesticides and fertilizers' quantity, toxicity, bioavailability and persistence represents an area of opportunity for the project. The elimination of the need to use of these materials could be also considered to prevent the contamination of land and water on site.

Biodiversity

The Biodiversity subcategory focuses on how infrastructure projects should also minimize negative impacts on natural species and their habitats, on and near the site. Special attention must be paid to avoiding introducing and spreading invasive species, as well as the fragmentation of habitats and animal movement.

The project has identified the fauna on site and developed specific studies on the preservation of aviary and land species, understanding how the project will modify their habitats. The developed *Plan de Vigilancia Ambiental* establishes a monitoring and mitigation plan for

environmental protection where for each project phase, a visual inspection and report of susceptible fauna and habitats will be performed and a specific rescue and relocation plan has been developed for affected species. After a one-year monitoring program of the impact of the wind turbines on bird migration, further studies and mitigation strategies have been put into place to address bird mortality as a result of the presence of the wind turbines on site. EURUS has also developed a detailed study and program for the control of rodents in the area. Rodents were identified as a population that has invaded various wind farms in the region of Istmo de Tehuantepec. During an entire year of monthly samplings of five consecutive nights, a program was put in place for the capture of rodents using different types of traps. Estimates of the population will be analyzed to develop a program of mid- and long-term for the control of future invasive species to wind farms, including traps, weeds control, trash and accumulation of materials and waste.

According to the preservation of hydrologic features the project does not negatively affect any of the four variables considered in this credit: maintenance of hydrologic connection, water quality, the function of superficial water bodies as habitat, and sediment transportation. The area where the project is located belongs to the hydrological region of Tehuantepec, basin of Laguna Superior e Inferior, where there are bodies of water that receive their water from the surface currents of Los Perros and Espiritu Santo. The rivers Río de los Perros and Espiritu Santo, located to the east and west of the project respectively, will maintain their function as ecosystems as it does not require any consumption of water not modification of water bodies.

To guarantee the lowest possible impact on the area the project has developed a detailed report for the construction and environmental regeneration of the site. It includes the environmental restoration of areas of temporary use during construction. After mounting the wind turbines, a restoration process was begun to return paths to their original characteristics using the topsoil that was previously removed to perform the construction work.

7. CLIMATE & RISK CATEGORY

Envision aims to promote infrastructure development that are sensitive to long-term climate disturbances. Climate and Risk focuses on avoiding direct and indirect contributions to greenhouse gas emissions, as well as promotes mitigation and adaptation actions to ensure short and long term resilience to hazards. Climate and Risk is further divided into two sub-categories: Emissions and Resilience.

Emission

The Emissions subcategory aims to understand and reduce dangerous emissions, both

greenhouse gas emissions as well as other pollutants, during all stages of a project's life cycle. Reducing these emissions minimizes short and long-term risk to the life cycle of the project.

EURUS involves renewable source of electricity generation and does not involve the use of fossil fuels for the energy production. Therefore, there are no greenhouse gas emissions associated to the activity of the project. The project is estimated to reduce CO₂ emissions by 6,031,828 tons of CO₂ during a 10 year crediting period. EURUS has developed a monthly monitoring plan where it obtains readings from power meters installed in their substation. These are reported and stored in an electronic system, which has been validated by a third party, SGS Climate Change Programme in United Kingdom, in accordance to the United Nations Framework Convention on Climate Change (UNFCCC) criteria for the Clean Development Mechanism (CDM) and host country criteria.

Given the nature of the project as a renewable energy generator, each kW/h of electricity generated replacing fossil fuels will prevent 0.60 kg of CO₂ emissions and air pollutants such as 1.33 gr. of SO₂ and 1.67 gr. of NO_x. Minimal dust generation took place during the construction phase of the project and was mitigated through irrigation and the use of tarps to cover vehicles transporting materials. EURUS has also developed a series of mitigation strategies for the air pollutant emissions associated with the type of vehicles and equipment utilized in the project during all phases. This includes following maximum limits for hydrocarbons emissions by vehicles following NOM-042-SEMARNAT-2003. On the analysis conducted there is no evidence of a detailed assessment measuring the criteria pollutants (carbon monoxide, lead, nitrogen dioxide, ozone, particle pollution, sulfur dioxide) but only some of them.

Resilience

The Resilience subcategory addresses the ability to withstand short-term risks, such as flooding or fires; and the ability to adapt to changing long-term conditions, such as changes in weather patterns, sea level rise, or changes in climate. Increased adaptability and decreased vulnerability ensures a longer useful life and ensures that the project will be able to meet the future needs of the community.

EURUS has developed a series of documents related to short-term emergency control. These include a documentation of environmental hazards, indicating the existing environmental emergencies on site as well as the development of mitigation strategies for each type of hazard. The project has also developed a comprehensive emergency plan, a simulacrum script, and a record of any environmental incidents that take place during the project life.

This category presents a large opportunity for the project to address issues of climate change.

The project could develop a comprehensive Climate Impact Assessment and Adaptation Plan assessing the vulnerability, risk, and adaptation of the project towards climate threats. This would enable its preparation to be resilient to the consequences of long-term climate change, perform adequately under altered climate conditions, or adapt to other long-term change scenarios.

8. SUMMARY AND CONCLUSION

The evaluation of EURUS has shown the strengths of the project as an important model for renewable energy generation and its significant contribution to Mexico's sustainable development. At the same time, it has also pointed out which categories of analysis provide great opportunities for improvement to ensure a more integrated, and holistic approach to sustainable infrastructure development.

EURUS has demonstrated an excellent performance in improving the quality of life of the community of La Venta. Given its nature as a wind farm, EURUS is expected to improve quality of life through the generation of renewable energy, reducing greenhouse emissions and air pollutants, and generating electricity to cover the partial needs of CEMEX, therefore reducing the electricity demand from the Mexican power grid for the area of La Venta. The project team has looked beyond its project site to truly relate to and positively impact its surroundings. It established a close relationship with the community from its initial phase by virtue of holding meetings, conducting surveys, and interviewing both residents and local authorities. It developed a detailed community study to identify its needs and opportunities, and will also positively impact the community life of the residents of La Venta through the initiatives outlined in its *Plan de Inversión Comunitaria*, where it has sought to invest in the development of La Venta into an economically, socially, and environmentally self-sufficient community. The project has undergone initiatives for the environment through reforestation and waste-management efforts and it has promoted educational programs in the form of a Masters in Eolic Energy as well as technical courses and workshops promoting self-employment, campaigns and awareness initiatives for health education. It has also supported investments in infrastructure projects such as the construction of a community center and the upgrading of a sports facility, as well as undergone initiatives in micro-enterprising encouraging the development of businesses in the area.

The project has made some efforts in making sure that the project will have minimal social impacts. They have improved the road network within and around the site, developing a drainage system to prevent the accumulation of water given that the project is located within a floodplain. Temporary routes and speed limits were established during the construction phase

to prevent the disruption of vehicular, animal, and human traffic in surrounding areas. Noise generation during the construction and operation phases have been monitored to ensure that levels remain within acceptable parameters, and important archaeological and historical vestiges on the surface of some areas within the project site were preserved to maintain their cultural and historic value. There are opportunities in the project to further address its visual impact on the landscape and the degree to which the turbines affect the views and local character of the surroundings. This is a particularly important aspect in wind energy generation projects.

The category of Leadership presents the largest area of opportunity for EURUS. The project has exhibited a strong commitment to sustainable development and collaboration but presents many opportunities for articulating a clear long-term view of the project's life-cycle and detailing roles and responsibilities within the leadership structure of the project team and among its stakeholders. ACCIONA, the operator of the project, has emphasized the importance of sustainability as a core value in their work, stating their commitment as a company in their *Política de Sostenibilidad*, which outlines their principles and the importance of integrating these across all stakeholders including the company, clients, suppliers and the communities involved. The project has clearly developed a Sustainability Management System analyzing and establishing goals, objectives, and policies to achieve levels of performance that are addressed in the Environmental Management Plan and the Integrated Social Management Plan. However, roles and responsibilities within the organization and the project team need to be specified to enable the authority of the parties involved to affect change to be validated and made sufficient. At the same time, the project presents the opportunity to obtain a full infrastructure integration outside of their focus on the internal system, establishing synergies with elements external to the project, assessing the existing community physical infrastructure or designing the project to incorporate its restoration as part of a larger strategic sustainability plan.

Within the category of Leadership, the subcategory of Planning presents the largest opportunity for EURUS as it addresses considerations for long-term project development to further increase its sustainability. While ACCIONA developed a report on long-term maintenance of the project, there are no considerations given to make constructed works more durable and resilient to extend the project's useful life. This could include designing the project in a way that adds flexibility in construction, enabling easy reconfiguration, deconstruction, and refurbishment, as well as possibilities for alternative future uses after the lifespan of the project.

The Resource Allocation category exhibits great performance in the Energy subcategory, but it also presents an important area of opportunity in the subcategories of Materials and Water.

The project represents a net positive amount of renewable energy, generating 250.5 MW of energy and producing an estimated 989.5 GWh of renewable energy per year. EURUS has developed a long-term monitoring plan where it obtains monthly readings from power meter equipment installed in their substation. In terms of Materials, EURUS has presented an effective strategy for reducing excavated materials taken off site, focusing on re-utilizing these during the environmental restoration phase for areas of temporary occupation as well as the formation of embankments in areas of the project. However, this area presents opportunities for further consideration of sustainable efforts regarding materials in the project. Some considerations include focusing on favoring locally sourced materials to minimize transportation costs, performing life-cycle energy assessments to estimate the net embodied energy of project materials, ensuring policies or practices regarding the procurement of materials from suppliers incorporate sustainable policies, and encouraging the future recycling, up-cycling, and reuse of materials by designing for waste and efficiency in project disassembly or deconstruction after its useful life. Within the subcategory of Water, the project has performed excellently in its efforts to protect fresh water availability. For all phases of the project, EURUS does not require any water consumption from surface water on site and includes a comprehensive drainage system and runoff controls associated with the development of new embankments to mitigate any possible changes that the project design might present to the flow of water on site, and therefore, the availability of fresh water in these waterways. The monitoring of water systems on site represents a possible opportunity for the project to ensure and demonstrate the maintenance of water flow and quality.

EURUS presented important efforts in preserving the habitats, species and non-living natural systems in the area while minimizing the negative impacts of the infrastructure project might pose on its natural setting. The project has been situated in a floodplain, avoiding development on steep slopes and seeking to preserve prime habitat and prime farmland by building on land deemed as having no ecological systems or prime habitats located on site by the Instituto de Geografía de la Universidad Nacional Autónoma de México. The current land use of the project site is agricultural and livestock. There are temporary farmlands, pastures, small areas of deciduous forest, and isolated shaded areas for cattle on site, and since the project installation requires sufficient space between wind turbines to prevent any interference with air flux, agricultural activities are able to continue within the site. The project also successfully maintains wetland and surface water functions first by not relying on the rivers on site as water sources, and second, by addressing runoff through the development of a drainage system. Because the project is located on an erosive floodplain and the introduction of wind turbines could affect water runoff, a drainage system was developed consisting of PVC tubes with a 500 mm diameter, working to collect water in the ditches along the site roads. Efforts have also been made to identify and protect the fauna found on site. *A Plan de Vigilancia Ambiental,*

seeking to establish a monitoring and mitigation plan for environmental protection, was developed and a monitoring program seeking the rescue and relocation of species has also been detailed based on this analysis. At the same time, the project has successfully addressed the control of invasive species in the area, developing a program for the control of rodents, which have been identified as posing a threat for other wind farms located in Oaxaca. The project presents opportunities in addressing ground and water contamination through the reduction of pesticides and fertilizer use, particularly since agricultural activities still continue on site, as well as the monitoring of water systems to ensure that the quality and flow of water has not been affected by the development of the project.

EURUS has excelled in its performance in the Climate and Risk category, particularly in the subcategory of Emissions. EURUS involves renewable source of electricity generation and does not involve the use of fossil fuels for the energy production. Because of this, there are no greenhouse gas emissions associated to the activity of the project. The project is estimated to reduce CO₂ emissions by 6,031,828 tons of CO₂ during a 10 year crediting period. These have been validated by a third party, SGS Climate Change Programme in United Kingdom, in accordance to the United Nations Framework Convention on Climate Change (UNFCCC) criteria for the Clean Development Mechanism (CDM) and host country criteria. Given the nature of the project as a renewable energy generator, each kW/h of electricity generated by the project will prevent the emission of 0.60 kg of CO₂ and air pollutants such as 1.33 gr. of SO₂ and 1.67 gr. of NO_x. Minimal dust was generated during the construction phase and it was mitigated through irrigation and the use of tarps to cover vehicles transporting materials. EURUS has also developed a series of mitigation strategies for the air pollutant emissions associated with the vehicles and equipment utilized in the project during all phases. The subcategory of Resilience presents the largest opportunity for the project. EURUS has developed a series of documents related to short-term emergency control that include environmental hazards, indicating the existing environmental emergencies on site as well as the development of mitigation strategies for each type of hazard. Further development of this preparation for short-term hazards should encompass more detailed information on mitigation strategies specific to each natural hazard. More importantly, the project should assess its climate threat by evaluating the vulnerability, risk, and adaptation of the project amid climate threats particular to its geographic location, which will also enable the preparation of a long-term adaptability plan that will help the project become more resilient to the consequences of long-term climate change.

This report evaluates the sustainability performance of the wind farm EURUS project according to the Envision™ Rating System. The report identifies areas in which the project scored highly, as well as low-scoring areas that represent opportunities for which the project team can learn and improve on in future projects, as they strive to achieve sustainable project design and construction methodologies.

APPENDIX:
APPENDIX A: PROJECT PICTURES AND DRAWINGS

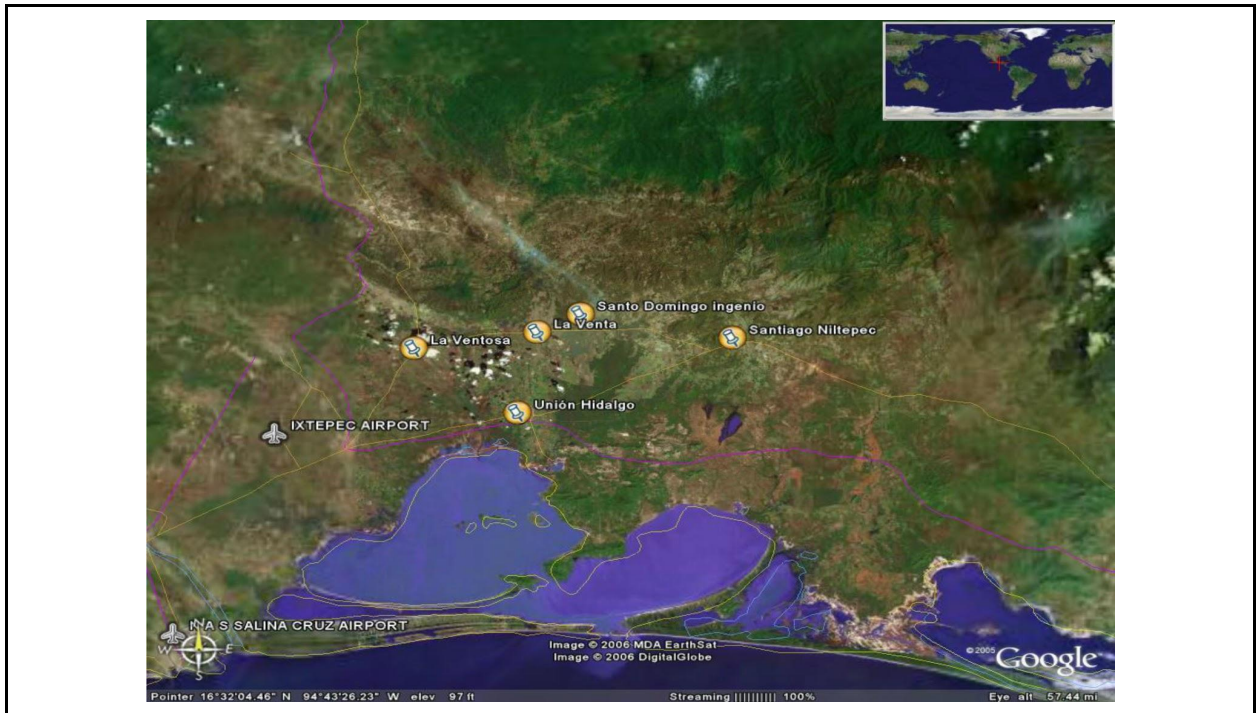


Figure 02: Location map for EURUS in La Venta, Mexico.
Sources: EURUS, S.A.P.I. de C.V., *Plan de Manejo Social Integrado: Proyecto Eólico EURUS*, México, 49.

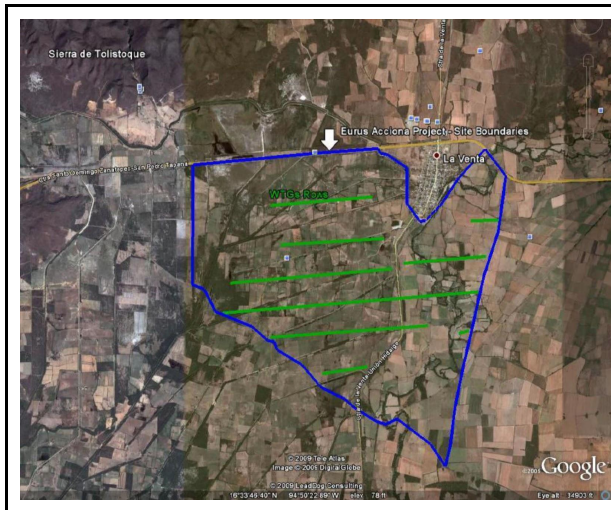


Figure 03: EURUS Project Plan delineating perimeter of project and location of wind turbines.
Sources: EURUS, S.A.P.I. de C.V., *Plan de Manejo Social Integrado: Proyecto Eólico EURUS*, México, 50.

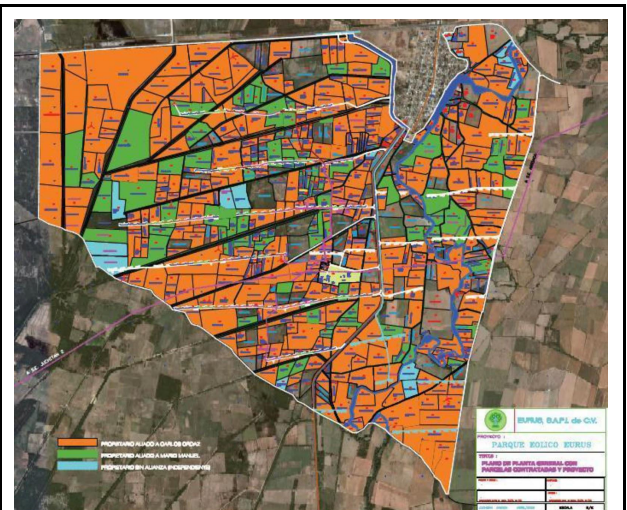


Figure 04: EURUS Project Plan delineating property subdivisions.
Sources: EURUS, S.A.P.I. de C.V., *Plan de Manejo Social Integrado: Proyecto Eólico EURUS*, México, 52.



Figure 05: EURUS As Built Project Plan Layout.
Sources: EURUS, S.A.P.I. de C.V., *Plano Derecho de Vía Definitivo*.

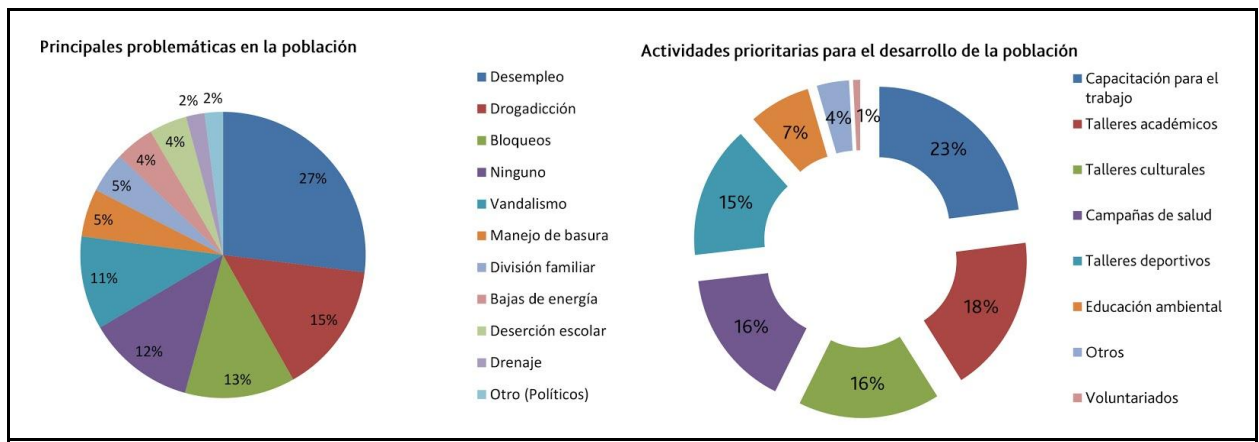


Figure 06: Sample Analytics from Community Profile indicating main problematics and priorities for Quality Life Improvement.
Sources: ACCIONA Energía, *Responsabilidad Social Corporativa: Estudio de Línea de Base Social 2014*, (La Venta, México, 2014), 12.



accio

CENTRO COMUNITARIO BIOCLIMATICO EJIDAL

EVALUACION FINAL DE LOS IV MODULOS DE LOS TALLERES DE CORTE Y CONFECCION

NOMBRE:	maria norma ordaz Pasgado
FECHA:	12/09/2013

Contesta las siguientes preguntas

- Que Te gusto de los talleres?
todo
- Los talleres alcanzó tus expectativas?
a) Si b) No
Porque?: aprendi muchas cosa
- Que aprendiste de los talleres?
A trabajar en equipo
- Crees que la capacitación impartida en los talleres fue satisfactoria?
a) Si b) No
Porque?: Aprendi lo queria saber
- En que otro taller de capacitación te interesaría participar?
bordado
- Recomendarías a otras personas asistir a los talleres?
a) Si b) No
Porque?: porque es bueno que se capaciten en algo

accio

CENTRO COMUNITARIO BIOCLIMATICO EJIDAL

EVALUACION FINAL DE LOS IV MODULOS DE LOS TALLERES DE CORTE Y CONFECCION

NOMBRE:	Manzi del Carmen Cruz Ruiz
FECHA:	12/09/2013

Contesta las siguientes preguntas

- Que Te gusto de los talleres?
todo
- Los talleres alcanzó tus expectativas?
a) Si b) No
Porque?: porque aprendi muchas cosas
- Que aprendiste de los talleres?
a) trabajar en equipo,
- Crees que la capacitación impartida en los talleres fue satisfactoria?
a) Si b) No
Porque?: aprendi lo que queria saber
- En que otro taller de capacitación te interesaría participar?
Computacion
- Recomendarías a otras personas asistir a los talleres?
a) Si b) No
Porque?: es muy bueno que se capaciten en algo.

Figure 08: Community Surveys Evaluating Workshops at Centro Comunitario Bioclimático Ejidal. Sources: ACCIONA Energía, Centro Comunitario Bioclimático Ejidal: Evaluación de los IV Módulos de los Talleres de Corte y Confección, (La Venta, México), 1-2.



Figure 09: Centro Comunitario La Venta and Improvement to Cancha de Futbol Venados. Sources: ACCIONA Energía. Reporte Fotográfico: Presentación del Centro Comunitario Ecoeficiente. La Venta, México, 2012. ACCIONA Energía. Reporte Fotográfico: Entrega de mejora de la Cancha de Fútbol Venados. La Venta, México, 2013.

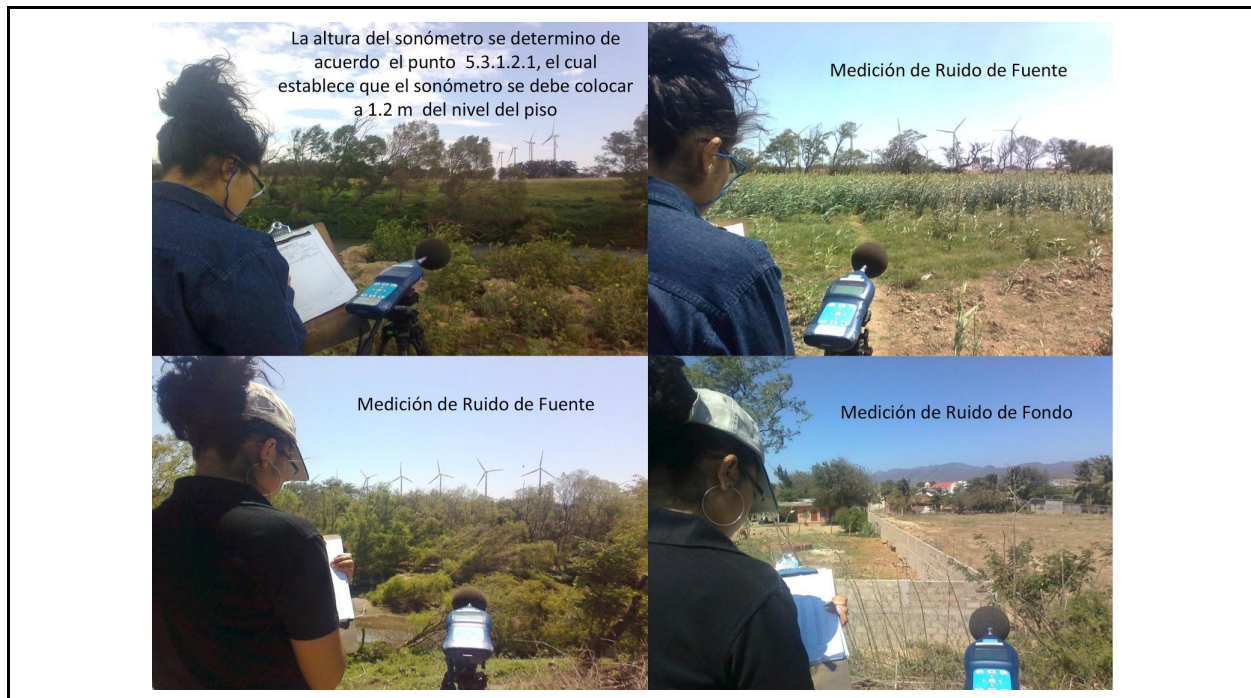


Figure 10: Noise Evaluation Methodology.
Sources: *Estudio de Ruido Metodología*, 6.

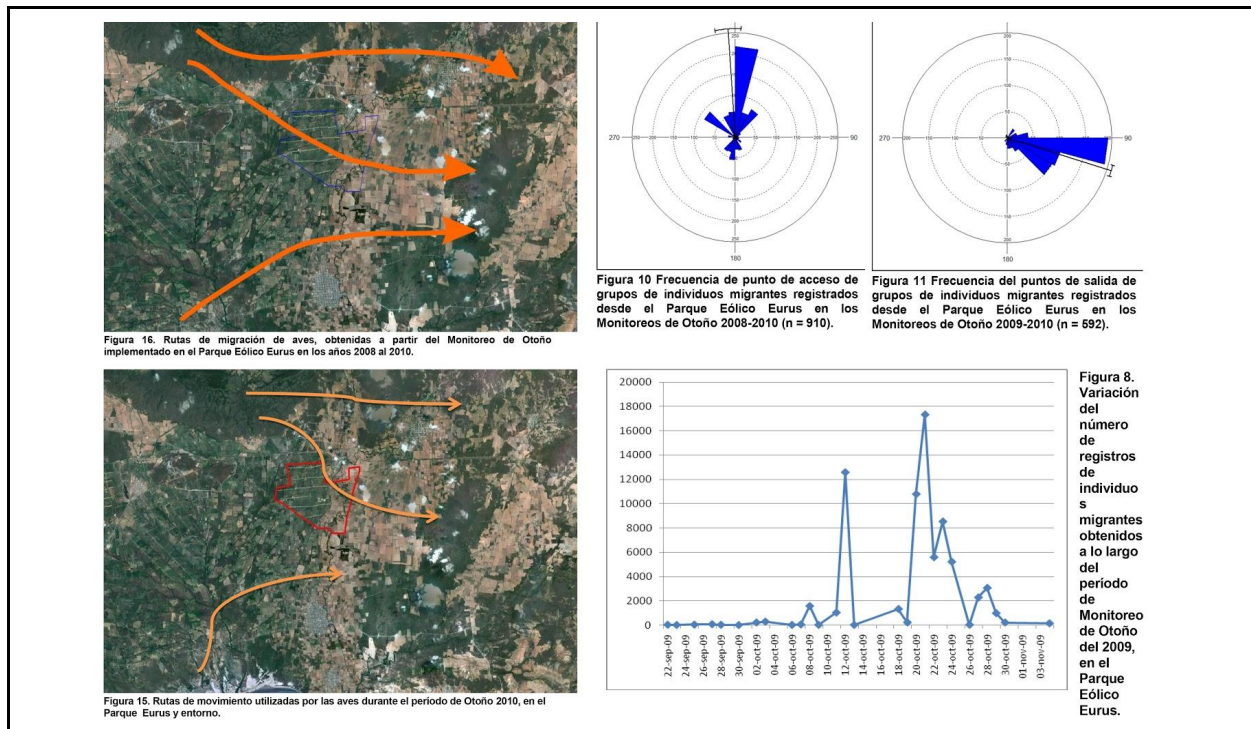


Figura 16. Rutas de migración de aves, obtenidas a partir del Monitoreo de Otoño implementado en el Parque Eólico Eurus en los años 2008 al 2010.



Figura 15. Rutas de movimiento utilizadas por las aves durante el periodo de Otoño 2010, en el Parque Eurus y entorno.

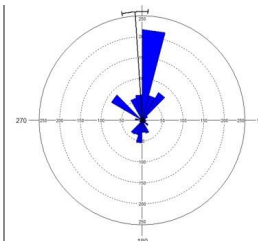


Figura 10 Frecuencia de punto de acceso de grupos de individuos migrantes registrados desde el Parque Eólico Eurus en los Monitoreos de Otoño 2008-2010 (n = 910).

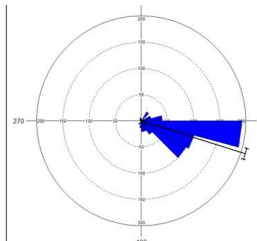


Figura 11 Frecuencia del puntos de salida de grupos de individuos migrantes registrados desde el Parque Eólico Eurus en los Monitoreos de Otoño 2009-2010 (n = 692).

Figure 11: Noise Evaluation Methodology.
Sources: GEO Servicios. *Informe Técnico: Monitoreo de Aves Otoño 2010 en el Parque Eólico EURUS*, (La Venta, México, 2010), 20-25.



Figure 12: Path and Road Improvement.
Sources: Anexo Fotográfico, 3, 19, 22-23.



Figure 13: Reutilization of excavated soils.
Sources: Anexo Fotográfico, 4-5.



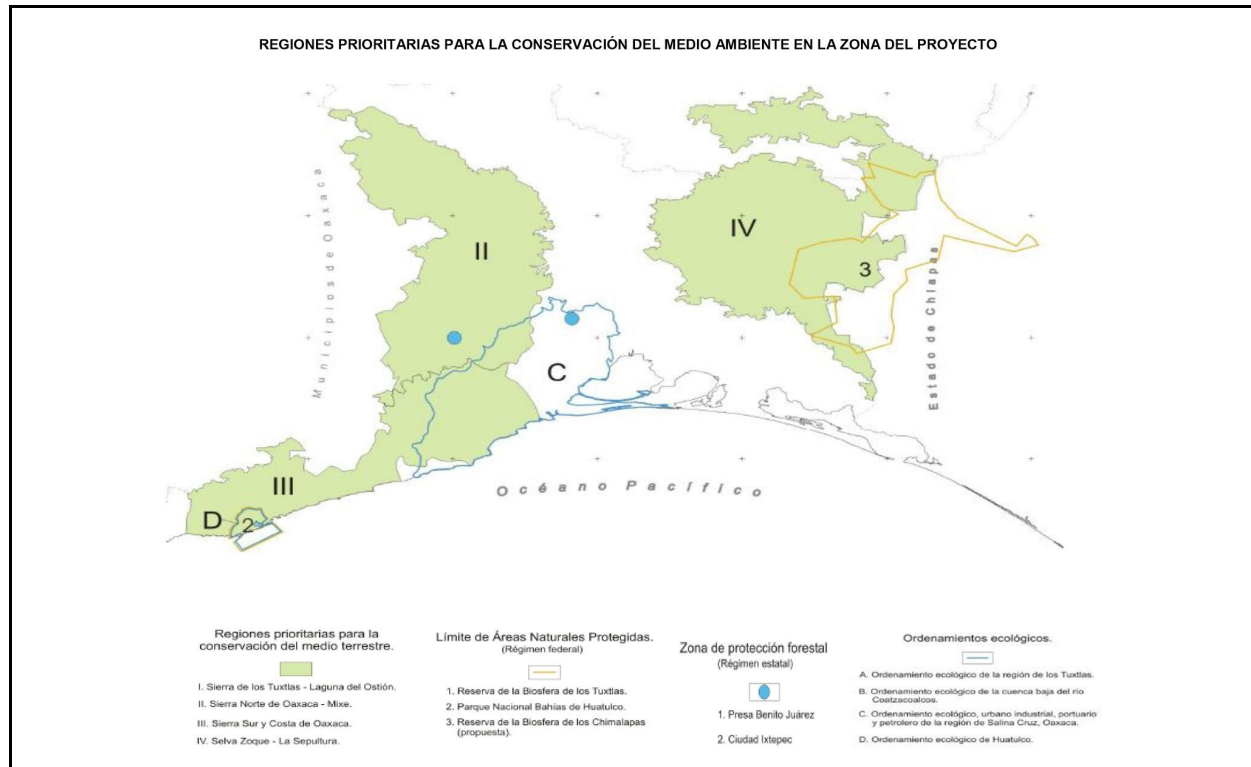


Figure 15: Map showing priority areas for environmental preservation in project area.
Sources: EURUS, S. A. P. I. de C. V., *Manifestación de Impacto Ambiental (MIA)*, (La Venta, México, 2006), 52.

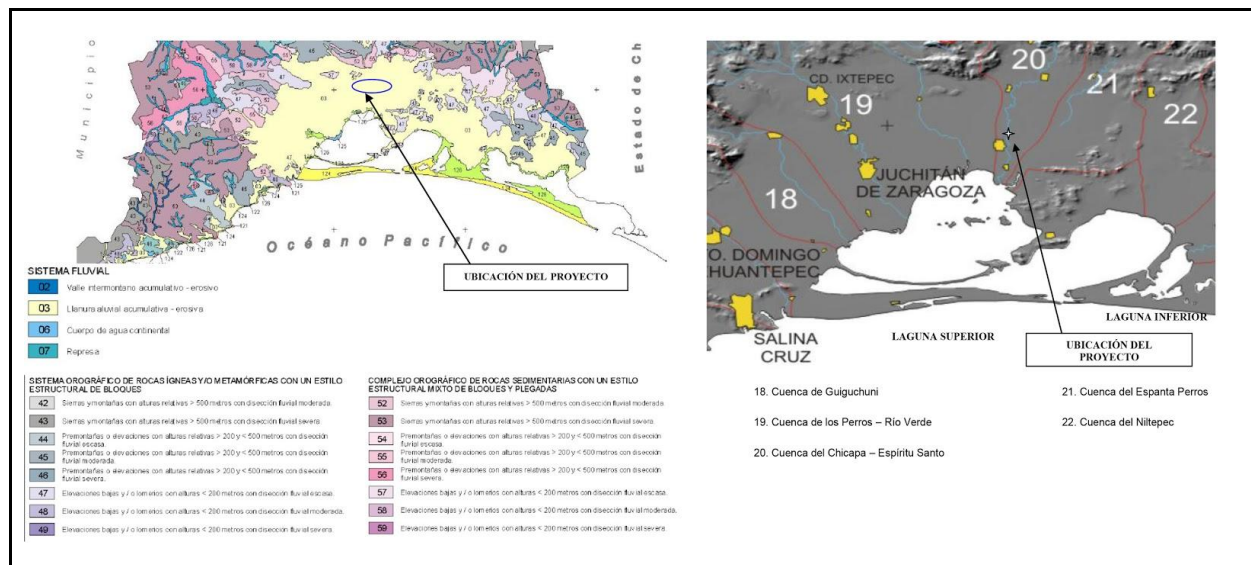


Figure 16: Physiography and Hydrology Maps.
Sources: EURUS, S. A. P. I. de C. V., *Manifestación de Impacto Ambiental (MIA)*, (La Venta, México, 2006), 54-55.



Figure 17: Waste Management for Hazardous Substances to prevent on-site contamination.
Sources: *Anexo Fotográfico*, 12-13.



Figure 18: Relocation of susceptible fauna off-site.
Sources: *Anexo Fotográfico*, 8.

APPENDIX B: ENVISION POINTS TABLE

CREDIT SCORING

		IMPROVED					ENHANCED				SUPERIOR			CONSERVING		RESTORATIVE		
1	QUALITY OF LIFE	PURPOSE	QL1.1 Improve community quality of life	2	5	10	20	25										
2			QL1.2 Stimulate sustainable growth and development	1	2	5	13	16										
3			QL1.3 Develop local skills and capabilities	1	2	5	12	15										
4		COMMUNITY	QL2.1 Enhance public health and safety	2				16										
5			QL2.2 Minimize noise and vibration	1				8	11									
6			QL2.3 Minimize light pollution	1	2	4	8	11										
7			QL2.4 Improve community mobility and access	1	4	7	14											
8			QL2.5 Encourage alternative modes of transportation	1	3	6	12	15										
9			QL2.6 Improve site accessibility, safety and wayfinding		3	6	12	15										
10		WELLBEING	QL3.1 Preserve historic and cultural resources	1		7	13	16										
11	QL3.2 Preserve views and local character		1	3	6	11	14											
12	QL3.3 Enhance public space		1	3	6	11	13											
		Maximum points possible:													181			
13	LEADERSHIP	COLLABORATION	LD1.1 Provide effective leadership and commitment	2	4	9	17											
14			LD1.2 Establish a sustainability management system	1	4	7	14											
15			LD1.3 Foster collaboration and teamwork	1	4	8	15											
16		MANAGEMENT	LD1.4 Provide for stakeholder involvement	1	5	9	14											
17			LD2.1 Pursue by-product synergy opportunities	1	3	6	12	15										
18			LD2.2 Improve infrastructure integration	1	3	7	13	16										
19		PLANNING	LD3.1 Plan for long-term monitoring and maintenance	1	3		10											
20			LD3.2 Address conflicting regulations and policies	1	2	4	8											
21			LD3.3 Extend useful life	1	3	6	12											
		Maximum points possible:													121			
22	RESOURCE ALLOCATION	MATERIALS	RA1.1 Reduce net embodied energy	2	6	12	18											
23			RA1.2 Support sustainable procurement practices	2	3	6	9											
24			RA1.3 Use recycled materials	2	5	11	14											
25			RA1.4 Use regional materials	3	6	9	10											
26			RA1.5 Divert waste from landfills	3	6	8	11											
27			RA1.6 Reduce excavated materials taken off site	2	4	5	6											
28			RA1.7 Provide for deconstruction and recycling	1	4	8	12											
29		ENERGY	RA2.1 Reduce energy consumption	3	7	12	18											
30			RA2.2 Use renewable energy	4	6	13	16	20										
31			RA2.3 Commission and monitor energy systems		3		11											
32	WATER	RA3.1 Protect fresh water availability	2	4	9	17	21											
33		RA3.2 Reduce potable water consumption	4	9	13	17	21											
34		RA3.3 Monitor water systems	1	3	6	11												
		Maximum points possible:													182			
35	NATURAL WORLD	SITING	NW1.1 Preserve prime habitat			9	14	18										
36			NW1.2 Protect wetlands and surface water	1	4	9	14	18										
37			NW1.3 Preserve prime farmland			6	12	15										
38			NW1.4 Avoid adverse geology	1	2	3	5											
39			NW1.5 Preserve floodplain functions	2	5	8	14											
40			NW1.6 Avoid unsuitable development on steep slopes	1	4	4	6											
41			NW1.7 Preserve greenfields	3	6	10	15	23										
42		LAND & WATER	NW2.1 Manage stormwater		4	9	17	21										
43			NW2.2 Reduce pesticide and fertilizer impacts	1	2	5	9											
44			NW2.3 Prevent surface and groundwater contamination	1	4	9	14	18										
45		BIODIVERSITY	NW3.1 Preserve species biodiversity	2			13	16										
46			NW3.2 Control invasive species			5	9	11										
47			NW3.3 Restore disturbed soils				8	10										
48	NW3.4 Maintain wetland and surface water functions		3	6	9	15	19											
		Maximum points possible:													203			
49	CLIMATE & RISK	EMISSIONS	CR1.1 Reduce greenhouse gas emissions	4	7	13	18	25										
50			CR1.2 Reduce air pollutant emissions	2	6		12	15										
51			CR2.1 Assess climate threat				15											
52		RESILIENCE	CR2.2 Avoid traps and vulnerabilities	2	6	12	16	20										
53			CR2.3 Prepare for long-term adaptability				16	20										
54			CR2.4 Prepare for short-term hazards	3		10	17	21										
55	CR2.5 Manage heat islands effects	1	2	4	6													
		Maximum points possible:													116			
		*The five innovation credits are bonus points and not included in total point tallies													803			

APPENDIX C: GRAPHS

EURUS WIND FARM PARQUE EÓLICO EURUS			IMPROVED	ENHANCED	SUPERIOR	CONSERVING	RESTORATIVE
			MEJORA	AUMENTA	SUPERIOR	CONSERVA	RESTAURA
QUALITY OF LIFE CALIDAD DE VIDA	PURPOSE PROPÓSITO	Q1.1 Improve Community Quality of Life Q1.1 Mejorar la Calidad de Vida de la Comunidad					
		Q1.2 Stimulate Sustainable Growth & Development Q1.2 Estimular el desarrollo y el crecimiento sostenible					
		Q1.3 Develop Local Skills And Capabilities Q1.3 Desarrollar Capacidades y Habilidades Locales					
	COMMUNITY COMUNIDAD	Q2.1 Enhance Public Health And Safety Q2.1 Mejorar la Salud Pública y la Seguridad					
		Q2.2 Minimize Noise And Vibration Q2.2 Minimizar ruidos y vibraciones					
		Q2.3 Minimize Light Pollution Q2.3 Minimizar Contaminación Luminica					
		Q2.4 Improve Community Mobility And Access Q2.4 Mejorar el acceso y la movilidad de la Comunidad					
		Q2.5 Encourage Alternative Modes of Transportation Q2.5 Fomentar modos alternativos de transporte					
		Q2.6 Improve Site Accessibility, Safety & Wayfinding Q2.6 Mejorar la accesibilidad, seguridad y señalización					
	WELLBEING BIENESTAR	Q3.1 Preserve Historic And Cultural Resources Q3.1 Preservar los recursos históricos y culturales					
		Q3.2 Preserve Views And Local Character Q3.2 Preservar las vistas y el carácter local					
		Q3.3 Enhance Public Space Q3.3 Mejorar el espacio público					
		Q10.0 Innovate Or Exceed Credit Requirements Q10.0 Créditos innovadores o que exceden los requerimientos					

Figure 19: Quality of Life category_ Summary of results

EURUS WIND FARM PARQUE EÓLICO EURUS			IMPROVED	ENHANCED	SUPERIOR	CONSERVING	RESTORATIVE
			MEJORA	AUMENTA	SUPERIOR	CONSERVA	RESTAURA
LEADERSHIP LIDERAZGO	COLLABORATION COLABORACIÓN	LD1.1 Provide Effective Leadership And Commitment LD1.1 Proporcionar compromiso y liderazgo efectivo					
		LD1.2 Establish A Sustainability Management System LD1.2 Establecer un sistema de gestión de la sostenibil-					
		LD1.3 Foster Collaboration And Teamwork LD1.3 Promover Colaboración y trabajo en equipo					
		LD1.4 Provide For Stakeholder Involvement LD1.4 Fomentar la participación de las partes interesadas					
	MANAGEMENT GESTIÓN	LD2.1 Pursue By-Product Synergy Opportunities LD2.1 Buscar oportunidades de sinergia derivada					
		LD2.2 Improve Infrastructure Integration LD2.2 Mejorar la integración de infraestructuras					
	PLANNING PLANIFICACIÓN	LD3.1 Plan For Long-Term Monitoring & Maintenance LD3.1 Planificar el monitoreo y mantenimiento a largo plazo					
		LD3.2 Address Conflicting Regulations & Policies LD3.2 Lidar con reglamentos y políticas en conflicto					
		LD3.3 Extend Useful Life LD3.3 Extender la vida útil					
		LD0.0 Innovate Or Exceed Credit Requirements LD0.0 Créditos innovadores o que exceden los requerimientos					

Figure 20: Leadership category_ Summary of results

		EURUS WIND FARM PARQUE EÓLICO EURUS		IMPROVED	ENHANCED	SUPERIOR	CONSERVING	RESTORATIVE
				MEJORA	AUMENTA	SUPERIOR	CONSERVA	RESTAURA
RESOURCE ALLOCATION	ASIGNACIÓN DE RECURSOS	MATERIALS MATERIALES	RA1.1 Reduce Net Embodied Energy RA1.1 Reducir energía neta incorporada					
			RA1.2 Support Sustainable Procurement Practices RA1.2 Apoyar prácticas de adquisición sustentable					
			RA1.3 Used Recycled Materials RA1.3 Utilizar materiales reciclados					
			RA1.4 Use Regional Materials RA1.4 Utilizar materiales de la región					
			RA1.5 Divert Waste From Landfills RA1.5 Disminuir la disposición final en rellenos sanitarios					
			RA1.6 Reduce Excavated Materials Taken Off Site RA1.6 Reducir los materiales de excavación sacados del local del proyecto					
			RA1.7 Provide for Deconstruction & Recycling RA1.7 Prever condiciones para la remoción de la construcción y el reciclaje					
	ENERGY ENERGÍA	RA2.1 Reduce Energy Consumption RA2.1 Reducir el consumo de energía						
		RA2.2 Use Renewable Energy RA2.2 Usar energías renovables						
		RA2.3 Commission & Monitor Energy Systems RA2.3 Puesta en servicio y monitoreo de sistemas energéticos						
WATER AGUA	RA3.1 Protect Fresh Water Availability RA3.1 Proteger la disponibilidad de agua dulce							
	RA3.2 Reduce Potable Water Consumption RA3.2 Reducir el consumo de agua potable							
	RA3.3 Monitor Water Systems RA3.3 Monitorear sistemas de provisión de agua							
		RA0.0 Innovate Or Exceed Credit Requirements RA0.0 Créditos innovadores o que exceden los requerimientos						

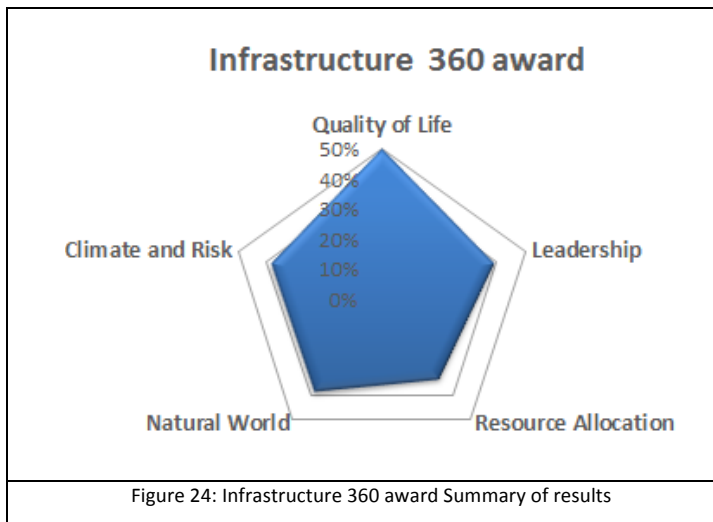
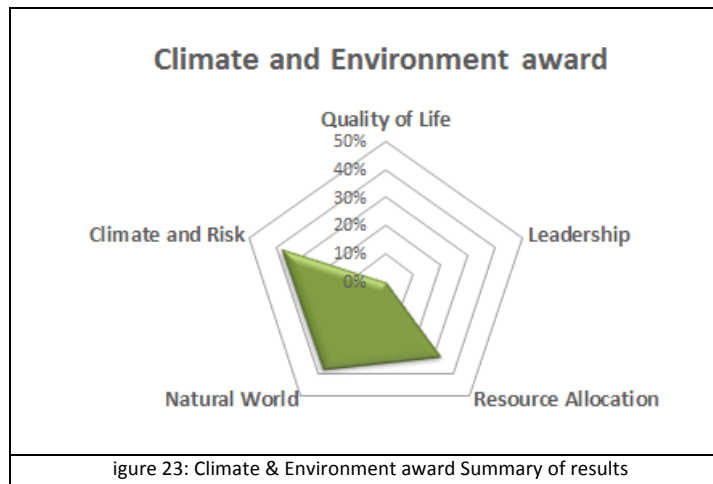
Figure 21:Resource Allocation category_ Summary of results

		EURUS WIND FARM PARQUE EÓLICO EURUS		IMPROVED MEJORA	ENHANCED AUMENTA	SUPERIOR SUPERIOR	CONSERVING CONSERVA	RESTORATIVE RESTAURA
MUNDO NATURAL	SITING EMPLAZAMIENTO	NW1.1 Preserve Prime Habitat NW1.1 Preservar hábitats de alta calidad						
		NW1.2 Preserve Wetlands and Surface Water NW1.2 Preservar humedales y aguas superficiales						
		NW1.3 Preserve Prime Farmland NW1.3 Preservar tierras agrícolas de alta calidad						
		NW1.4 Avoid Adverse Geology NW1.4 Evitar zonas de geología adversa						
		NW1.5 Preserve Floodplain Functions NW1.5 Preservar funciones de llanura aluvial						
		NW1.6 Avoid Unsuitable Development on Steep Slopes NW1.6 Evitar la ocupación inadecuada en pendientes pronunciadas						
		NW1.7 Preserve Greenfields NW1.7 Preservar áreas sin ocupación						
NATURAL WORLD	LAND + WATER IMPACTOS EN EL AGUA Y SUELO	NW2.1 Manage Stormwater NW2.1 Gestión de aguas pluviales						
		NW2.2 Reduce Pesticides and Fertilizer Impacts NW2.2 Reducir el impacto de fertilizantes y plaguicidas						
		NW2.3 Prevent Surface and Groundwater Contamination NW2.3 Prevenir la contaminación de aguas superficiales y profundas						
BIODIVERSITY BIODIVERSIDAD		NW3.1 Preserve Species Biodiversity NW3.1 Preservar la biodiversidad						
		NW3.2 Control Invasive Species NW3.2 Control de especies invasivas						
		NW3.3 Restore Disturbed Soils NW3.3 Restaurar suelos alterados						
		NW3.4 Maintain Wetland and Surface Water Functions NW3.4 Preservar los humedales y las funciones de aguas superficiales						
		NW0.0 Innovate or Exceed Credit Requirements NW0.0 Créditos innovadores o que exceden los requerimientos						

Figure 22: Natural World category_ Summary of results

		EURUS WIND FARM PARQUE EÓLICO EURUS		IMPROVED MEJORA	ENHANCED AUMENTA	SUPERIOR SUPERIOR	CONSERVING CONSERVA	RESTORATIVE RESTAURA	
CLIMATE AND RISK CLIMA Y RIESGO	EMISSIONS EMISIONES	CR1.1 Reduce Greenhouse Gas Emissions CR1.1 Reducir las emisiones de Gases de Efecto Invernadero (GEI)							
		CR1.2 Reduce Air Pollutant Emissions CR1.2 Reducir las emisiones contaminantes del aire							
	RESILIENCE RESILIENCIA		CR2.1 Assess Climate Threat CR2.1 Evaluar amenazas relacionadas al Cambio Climático						
			CR2.2 Avoid Traps And Vulnerabilities CR2.2 Evitar situaciones de riesgo y vulnerabilidad						
			CR2.3 Prepare For Long-Term Adaptability CR2.3 Establecer estrategias de adaptación de largo plazo, frente al Cambio Climático						
			CR2.4 Prepare For Short-Term Hazards CR2.4 Preparación frente a riesgos de corto plazo						
			CR2.5 Manage Heat Island Effects CR2.5 Administrar el efecto Isla de Calor						
		CR0.0 Innovate Or Exceed Credit Requirements CR0.0 Créditos innovadores o que exceden los requerimientos							

Figure 23: Climate & Risk category_ Summary of results



EURUS, MEXICO				PT.	Performance
1	QUALITY OF LIFE	PURPOSE	QL1.1 Improve Community Quality of Life	20	Conserving
2			QL1.2 Stimulate Sustainable Growth & Development	13	Conserving
3			QL1.3 Develop Local Skills And Capabilities	15	Restorative
4		COMMUNITY	QL2.1 Enhance Public Health And Safety	0	No Score
5			QL2.2 Minimize Noise And Vibration	8	Conserving
6			QL2.3 Minimize Light Pollution	0	No Score
7			QL2.4 Improve Community Mobility And Access	4	Enhanced
8			QL2.5 Encourage Alternative Modes of Transportation	0	No Score
9			QL2.6 Improve Site Accessibility, Safety & Wayfinding	6	Superior
10		WELLBEING	QL3.1 Preserve Historic And Cultural Resources	13	Conserving
11			QL3.2 Preserve Views And Local Character	0	No Score
12			QL3.3 Enhance Public Space	11	Conserving
QL0.0 Innovate Or Exceed Credit Requirements				8	
QL				98	
EURUS, MEXICO				PT.	Performance
13	LEADERSHIP	COLLABORATION	LD1.1 Provide Effective Leadership And Commitment	17	Conserving
14			LD1.2 Establish A Sustainability Management System	7	Superior
15			LD1.3 Foster Collaboration And Teamwork	4	Enhanced
16			LD1.4 Provide For Stakeholder Involvement	5	Enhanced
17		MNGMT.	LD2.1 Pursue By-Product Synergy Opportunities	0	No Score
18			LD2.2 Improve Infrastructure Integration	3	Enhanced
19		PLANNING	LD3.1 Plan For Long-Term Monitoring & Maintenance	10	Conserving
20			LD3.2 Address Conflicting Regulations & Policies	1	Improved
21			LD3.3 Extend Useful Life	0	No Score
LD0.0 Innovate Or Exceed Credit Requirements				0	N/A
LD				47	
EURUS, MEXICO				PT.	Performance
22	RESOURCE ALLOCATION	MATERIALS	RA1.1 Reduce Net Embodied Energy	0	No Score
23			RA1.2 Support Sustainable Procurement Practices	2	Improved
24			RA1.3 Used Recycled Materials	0	No Score
25			RA1.4 Use Regional Materials	0	No Score
26			RA1.5 Divert Waste From Landfills	3	Improved
27			RA1.6 Reduce Excavated Materials Taken Off Site	6	Conserving
28			RA1.7 Provide for Deconstruction & Recycling	0	No Score
29		ENERGY	RA2.1 Reduce Energy Consumption	0	No Score
30			RA2.2 Use renewable energy	20	Restorative
31		RA2.3 Commission & Monitor Energy Systems	11	Conserving	
32		WATER	RA3.1 Protect Fresh Water Availability	17	Conserving
33			RA3.2 Reduce Potable Water Consumption	0	No Score
34			RA3.3 Monitor Water Systems	0	No Score
RA0.0 Innovate Or Exceed Credit Requirements				0	N/A
RA				59	

EURUS, MEXICO			PT.	Performance	
35	NATURAL WORLD	SITING	NW1.1 Preserve Prime Habitat	9	Superior
36			NW1.2 Preserve Wetlands and Surface Water	1	Improved
37			NW1.3 Preserve Prime Farmland	6	Superior
38			NW1.4 Avoid Adverse Geology	1	Improved
39			NW1.5 Preserve Floodplain Functions	5	Enhanced
40			NW1.6 Avoid Unsuitable Development on Steep Slopes	6	Conserving
41			NW1.7 Preserve Greenfields	0	No Score
42	L & W	NW2.1 Manage Stormwater	9	Superior	
43		NW2.2 Reduce Pesticides and Fertilizer Impacts	0	No Score	
44		NW2.3 Prevent Surface and Groundwater Contamination	4	Enhanced	
45	BIODIVERSITY	NW3.1 Preserve Species Biodiversity	2	Improved	
46		NW3.2 Control Invasive Species	11	Restorative	
47		NW3.3 Restore Disturbed Soils	8	Conserving	
48		NW3.4 Maintain Wetland and Surface Water Functions	15	Conserving	
			NW0.0 Innovate or Exceed Credit Requirements	0	N/A
			NW	77	
EURUS, MEXICO			PT.	Performance	
49	CLIMATE	EMISSION	CR1.1 Reduce Greenhouse Gas Emissions	25	Restorative
50			CR1.2 Reduce Air Pollutant Emissions	12	Conserving
51	RESILIENCE	CR2.1 Assess Climate Threat	0	No Score	
52		CR2.2 Avoid Traps And Vulnerabilities	0	No Score	
53		CR2.3 Prepare For Long-Term Adaptability	0	No Score	
54		CR2.4 Prepare For Short-Term Hazards	10	Superior	
55		CR2.5 Manage Heat Island Effects	0	No Score	
			CR0.0 Innovate Or Exceed Credit Requirements	0	N/A
			CR	47	
Total points				328	0

APPENDIX D: CREDIT DETAIL

EURUS WIND FARM: CREDIT SPREADSHEET WITH DETAILS		
CATEGORY I, PEOPLE AND LEADERSHIP		
SUB CATEGORY: QUALITY OF LIFE		
	Score	EURUS, Mexico
QL1.1 Improve Community Quality of Life	20	<p>Conserving</p> <p>In order to ensure social and environmental management of the project while improving the economic and social conditions of the area, EURUS developed a holistic assessment of the area called the <i>Plan de Manejo Social Integrado</i>, including community profiles of the population of direct (La Venta) and indirect influence (surrounding municipalities). They outline needs, opportunities and issues of each community at a regional and local level, as well as in reference to the EURUS project. The project owner has built a close relationship with the community since the project’s beginning in February 2009, when EURUS surveyed 155 residents of La Venta, representing 40% of the area’s population, as part of their development of the plan (EURUS, S.A.P.I. de C.V., 10). Most of the project’s negative impact took place during the construction phase, for which the affected 61.3 hectares were financially compensated through the improvement of community services and infrastructure, which was identified as the main need of the area at the time. Roads and walkways were improved, certain residents were trained to fulfill duties in the operation and maintenance phases of the project, and small businesses were also created, invigorating the area (EURUS, S.A.P.I. de C.V., 16-18). The <i>Plan de Manejo Ambiental</i> and <i>Plan de Vigilancia Ambiental</i> sought to mitigate the negative impacts during the construction phase as well as to preserve the fauna and flora of the area (EURUS, S.A.P.I. de C.V., 16-18). Furthermore, through the <i>Plan de Inversión Comunitaria</i>, the project has invested in promoting self-employment, education, and community collaboration through projects such as the organization of workshops and training sessions, the construction of a community center, and reforestation and waste-management initiatives.</p> <p><u>Source:</u> ACCIONA Energía. <i>Centro Comunitario Bioclimático Ejidal: Evaluación de los IV Módulos de los Talleres de Corte y Confección</i>. La Venta, México. ACCIONA Energía. <i>Invitación a Clausura y Exposición de Trabajos Bordado</i>. La Venta, México, 2010. ACCIONA Energía. <i>Minuta de Reunión con Comisariado Ejidal de La Venta, Oaxaca</i>. La Venta, México, 2014. EURUS, S.A.P.I. de C.V. <i>Plan de Manejo Social Integrado: Proyecto Eólico EURUS, México</i>.</p> <p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Provide acknowledgments and endorsements from the community that the design participation process was helpful and that their input was appropriately assessed and incorporated into the project design. - Put in place a mechanism of measurement and reporting to enable the tracking of progress in the implemented actions.
		<p>Conserving</p> <p>EURUS has successfully supported and stimulated the sustainable growth and development of La Venta through investment in capacity building and productivity, as outlined in their <i>Plan de Inversión Comunitaria</i>. This plan seeks to develop La Venta into a self-sufficient community economically, socially, and environmentally. The program focuses on four categories: environment, education, community infrastructure, and productive projects. Some of these projects include reforestation efforts, the installation of domestic aero-generators to provide communities in need with access to energy, educational programs such as a Masters in Eolic Energy, workshops in cooking and sewing to promote self-employment, the construction of a community center and a sports facility, awareness and prevention of uterine diseases, and psychological assistance, among others (ACCIONA Energía, <i>Minuta de Reunión con Comisariado Ejidal de La Venta, Oaxaca</i>, 1). Another</p>
QL1.2 Stimulate Sustainable Growth & Development	13	

		<p>important action has been the development of micro-enterprise initiatives to encourage businesses in the area.</p> <p><u>Source:</u> ACCIONA Energía. <i>Centro Comunitario Bioclimático Ejidal: Evaluación de los IV Módulos de los Talleres de Corte y Confección</i>. La Venta, México. ACCIONA Energía. <i>Invitación a Clausura y Exposición de Trabajos Bordado</i>. La Venta, México, 2010. ACCIONA Energía. <i>Minuta de Reunión con Comisariado Ejidal de La Venta, Oaxaca</i>. La Venta, México, 2014. EURUS, S.A.P.I. de C.V. <i>Plan de Manejo Social Integrado: Proyecto Eólico EURUS, México</i>.</p> <p><u>RECOMMENDATIONS</u> - Generate an analysis of the effects of the delivered work on local productivity. This should include metrics of performance and reporting to evaluate the impact of the implemented actions.</p>
<p>QL1.3 Develop Local Skills and Capabilities</p>	<p>15</p>	<p>Restorative</p> <p>EURUS and ACCIONA have developed a detailed <i>Plan de Manejo Social Integrado</i> analyzing the community and identifying opportunities for local employment, training, and education (ACCIONA Energía, <i>Estudio Etnográfico 2012</i>). It has organized educational courses such as Computing, English, Basic Math, Health, Basic Economics and Finance, among others. It developed an “Aula de Sostenibilidad” to educate the population about sustainable development in conjunction with other educational institutions, as well as a Masters in Eolic Energy to create specialized professionals through a series of technical courses and workshops at no cost under scholarships in association with UNISTMO (ACCIONA Energía. Responsabilidad Corporativa: “Unistmo” Prototipos, Fondos de Becas, Cursos Técnicos, 3-6). Another focus has been the promotion of self-employment by organizing various workshops and activities such as sewing, cooking, and baking as well as micro-enterprise workshops aimed at assisting local entrepreneurs in the challenges of beginning and maintaining a micro-enterprise (EURUS, S.A.P.I. de C.V., <i>Plan de Manejo Social Integrado: Proyecto Eólico EURUS, México</i>, 44-45).</p> <p><u>Source:</u> ACCIONA Energía. <i>Convocatoria a Cursos en Línea del Centro Comunitario de Aprendizaje del TEC De Monterrey</i>. ACCIONA Energía. <i>Responsabilidad Corporativa: “Unistmo” Prototipos, Fondos de Becas, Cursos Técnicos</i>. La Venta, México, 2011.</p> <p><u>RECOMMENDATIONS</u> - Contribute to local employment and training by hiring local residents in the project, especially those in disadvantaged groups as identified in the community profile studies. - Provide documentation indicating plans and commitments for hiring local workers as well as a statement of the ratio of proposed local hires to overall hires, and the skill mix in relation to overall project hiring and employment.</p>
<p>QL2.1 Enhance Public Health And Safety</p>	<p>0</p>	<p>No Score</p> <p>As part of the project, ACCIONA developed a report evaluating the risks present in the construction phase (ACCIONA Energía, <i>Evaluación de Riesgos: Parque Eólico en Construcción</i>, 5-102). The risks involved are ranked according to their risk level and classified according to the task pertaining to each project phase. Preventive measures to mitigate each risk are outlined, including appropriate equipment to be utilized during the process. However, no documentation was provided indicating the employment of new technologies in the project nor specifying that the project took into account the health and safety implications of using new materials, technologies, or methodologies above and beyond the regulatory requirements.</p> <p><u>Source:</u> ACCIONA Energía. <i>Evaluación de Riesgos: Parque Eólico en Construcción</i>. La Venta, México, 2012. ACCIONA Energía. <i>Instrucción: Metodología para la Identificación y Evaluación de Riesgos Laborales</i>. La Venta, México, 2012. ACCIONA Energía. <i>Procedimiento: Evaluación de Riesgos Laborales</i>. La Venta, México, 2012.</p>

		<p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Assess the exposures and risks created by the application of new or non-standard technologies, materials, equipment, and methodologies to be employed on the project. - Provide documentation outlining risks and mitigation strategies for project design ensuring public health and safety of employees during the operation phase.
<p>QL2.2 Minimize Noise And Vibration</p>	<p>8</p>	<p>Conserving</p> <p>In an effort to mitigate the impact of noise generated by the project, a noise study was developed by Equilibra following the legislation of NOM-081-SEMARNAT-1994. The sources and levels of noise generated by the wind turbines were identified spatially (<i>Estudio de Ruido Metodología</i>, 3-5). No sources of sound emitting levels higher than the maximum delineated by the law were found during the day or night. Ongoing monitoring has been implemented as part of an effort to track the movement of birds in the area, particularly at night. Pressurized microphones (PZM) sensible to frequencies between 0.1 and 10.0 kHz have been located on project site for monitoring.</p>
		<p><u>Source:</u> <i>Estudio de Ruido Metodología</i> GEO Servicios. <i>Informe Técnico: Monitoreo de Aves Otoño 2010 en el Parque Eólico EURUS</i>. La Venta, México, 2010. EQUILIBRA. <i>Establece los Límites Máximos Permisibles de Emisión de Ruido de las Fuentes Fijas y su Método de Medición: EURUS, S. A. P. I. de C. V. Naucalpan de Juárez, Estado de México</i>, 2011.</p>
		<p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Generate design proposals for noise and vibration reduction for both the construction and operation phases. - Establish monitoring programs to ensure that noise and vibration target levels are acceptable to the community throughout the project lifespan. - Provide documentation delineating sources and levels of noise generated during the construction phase and efforts undertaken to mitigate their impact.
<p>QL2.3 Minimize Light Pollution</p>	<p>0</p>	<p>No Score</p> <p>No documentation has been provided demonstrating an effort to conserve energy and reduce obtrusive lighting and excessive glare in the project.</p>
		<p><u>Source:</u> N/A</p>
		<p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Provide documentation of lighting assessments conducted for the project. - Provide plans, drawings, and/or specifications showing the use of energy-efficient lighting, removal of existing but unneeded lighting, use of automatic turnoff systems, and application of non-lighting alternatives.
<p>QL2.4 Improve Community Mobility And Access</p>	<p>4</p>	<p>Enhanced</p> <p>As part of the project, EURUS has developed a road network allowing for access and communication between the generators. The roads providing access to the site have been appropriately upgraded to withstand heavy transportation and prevent the necessity of additional roads. Interior project roads will have a 4m width and a maximum slope of 12%. In order to prevent the accumulation of water, appropriate drainage was built in with 500 mm PVC tubes. Temporary routes were habilitated for preventing the disruption of vehicular, animal, and human traffic to surrounding territories (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental</i>, 9).</p>
		<p><u>Source:</u> EURUS, S. A. P. I. de C. V. <i>Plantas Carriles de Acceso Este</i>. EURUS, S. A. P. I. de C. V. <i>Planta y Perfil Camino A, Corona 5 y 6 m</i>. La Venta, México, 2009. EURUS, S. A. P. I. de C. V. <i>Planta y Perfil de Acceso Zona Oeste</i>. La Venta, México, 2008. EURUS, S. A. P. I. de C. V. <i>Sección de Construcción Camino A, Corona 5 y 6 m</i>. La Venta, México, 2009.</p>
		<p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Expand access considerations to expected traffic flows and volumes of the surrounding community. - Work with decision-makers at adjacent facilities and transportation hubs to determine best

		modes of access.
QL2.5 Encourage Alternative Modes of Transportation	0	No Score
		The project is located in the municipality of Juchitán de Zaragoza, which has a paved road system that connects its settlements with the trans-isthmus road, the federal road connecting to the state capital of Mexico City, and the railroad (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental (MIA)</i> , 18.). No documentation has been provided regarding traffic and alternative modes of transportation in the area, nor demonstrating an effort to improve accessibility to non-motorized transportation and public transit.
		<i>Source:</i> N/A
		RECOMMENDATIONS - Improve accessibility to non-motorized transportation and public transit and promote alternative transportation for workers to enhance accessibility to the project site. - Provide documents and drawings showing that the constructed work is within a convenient walking distance to multi-modal transportation. - Consider the commitment to a region-wide public transit network in the same right-of-way as the present road system as a potential community infrastructure for the area.
QL2.6 Improve Site Accessibility, Safety & Wayfinding	6	Superior
		The project has improved site accessibility and safety during both the construction and operation phases. During construction, barbed wire was put in place along the construction works temporarily, and alternate transportation routes were utilized to prevent congestion (<i>Anexo Fotográfico</i> , 2-9). Furthermore, a maximum velocity of 20 km/h was established on the project's interior roads, which was successfully communicated by the placement of signs. The project also mitigated the generation of dust on roads by periodic irrigation of the roads adjacent to the project site as well as the appropriate signage and labelling of hazardous materials on site (<i>Anexo Fotográfico</i> , 9-15). No documentation has been provided demonstrating the improvement of wayfinding on site.
		<i>Source:</i> <i>Anexo Fotográfico</i> EURUS, S. A. P. I. de C. V. <i>Planta Carriles de Acceso Este</i> . EURUS, S. A. P. I. de C. V. <i>Planta y Perfil Carril de Acceso Zona Oeste</i> . La Venta, México, 2008.
		RECOMMENDATIONS - Further clear, identifiable, and intuitive signage for safe access and egress in order to improve wayfinding. - Determine how the project fits within its surroundings and whether it has an impact on its context, which may call for an integration with the local community and its environmental and cultural resources.
QL3.1 Preserve Historic and Cultural Resources	13	Conserving
		The Instituto Nacional de Antropología e Historia (INAH) analyzed the project plan drawings and technical specifications in order to determine the presence or absence of historical and cultural resources at the project site. They identified 16 areas within the boundary of the project, 5 (Las Pilas 1, Las Pilas 2, El Frijolar, Las Ruedas, and La Hacienda) of which shall be preserved and protected from excavation, leveling and construction within a surrounding 15 m radius (Instituto Nacional de Antropología e Historia, 3). The study determined archaeological and historical vestiges on the surface of these areas, including ceramics and walls of previous settlements. Consequently, the design of EURUS makes sure to avoid the areas specified in the study as having cultural and historic value. It is also specified that in the case that any archaeological vestiges are found in the areas of construction where no findings were reported, any work must be immediately suspended and reported to the Institute to determine follow-up measures.
		<i>Source:</i> Instituto Nacional de Antropología e Historia. <i>Vestigios</i> . Oaxaca, México, 2006.

		<p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Upgrade or expand existing cultural and historic sites and facilities. - Provide efforts to enhance or restore existing historic and cultural resources beyond constructing at a radius from these sites, possibly by working with historic or cultural preservationists to ensure restoration of the existing historic or cultural resource.
<p>QL3.2 Preserve Views and Local Character</p>	<p>0</p>	<p>No Score</p> <p>While the project was carefully designed in order to maintain the local character of the natural environment in which it is located, as exhibited in their <i>Manifestación de Impacto Ambiental (MIA-P)</i> and subsequently their <i>Plan de Vigilancia Ambiental (PVA)</i>, no documentation was provided referring specifically to efforts to identify important community views and aspects of the local landscape to be preserved.</p>
		<p><i>Source:</i> EURUS, S. A. P. I. de C. V. <i>Informe de Construcción y Regeneración Ambiental de Áreas de Uso Temporal y Estrategia de Manejo de Parcelas Fraccionadas</i>. Oaxaca, México, 2012.</p>
		<p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Identify important elements of the site character including landform or levels, views, natural landscape features, materials, planting, style/detailing, scale, and landscape/townscape pattern. - Develop an inventory of all natural landscape features and view resources to be protected and plan for addressing public views in the project design. - Meet with officials and decision-makers to discuss policies and regulations as well as to identify views, natural landscape features, and important local character traits to be maintained.
<p>QL3.3 Enhance Public Space</p>	<p>11</p>	<p>Conserving</p> <p>As part of the project, EURUS led the design and construction of a community center for La Venta, the Centro Comunitario Ecoeficiente La Venta. The center was meant to provide a physical space to promote social, economic, and environmental well-being in the area through training and partnership with specialized institutions for the creation of self-employment projects (ACCIONA Energía, <i>Reporte Fotográfico: Presentación del Centro Comunitario Ecoeficiente</i>, 1). This space would enable a physical meeting point for the community to hold formative, recreational, and cultural workshops and aid in the increase of personal and family development of the residents of La Venta. Furthermore, a soccer field was also renovated for the promotion of recreational and collaborative activities in the area. No documentation was provided indicating the stakeholders’ level of satisfaction with the projects at stake.</p>
		<p><i>Source:</i> ACCIONA Energía. <i>Centro Comunitario Ecoeficiente La Venta</i>. ACCIONA Energía. <i>Reporte Fotográfico: Presentación del Centro Comunitario Ecoeficiente</i>. La Venta, México, 2012. ACCIONA Energía. <i>Reporte Fotográfico: Entrega de mejora de la Cancha de Fútbol Venados</i>. La Venta, México. 2013.</p>
		<p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Evaluate stakeholder satisfaction with efforts made and results of the projects and determine whether additional changes can be made to meet the needs of the community.
<p>QL0.0 Innovate Or Exceed Credit Requirements</p>	<p>8</p>	<p>The project has shown an outstanding performance on the development of long-term skills and capacitation of the residents of the community of La Venta. From its early phases, the project developed a holistic assessment of the area called the <i>Plan de Manejo Social Integrado</i>, including community profiles of the population of direct and indirect influence, outlining the needs, opportunities and issues of each community at a regional and local level, as well as in reference to the EURUS project. Stemming from this study, the <i>Plan de Inversión Comunitaria</i> was created to enable the project to invest in promoting self-employment, education, and community collaboration to revitalize the economy of the community of La Venta. Some of the educational initiatives involve educational courses in Computing, English, Basic Math, Health, Basic Economics and Finance, among others, an “Aula de Sostenibilidad” to educate the population about sustainable development in conjunction with other educational institutions, and a Masters in Eolic Energy to create specialized professionals through a series of technical courses and workshops at no cost under scholarships in</p>

		<p>association with UNISTMO (ACCIONA Energía. Responsabilidad Corporativa: “Unistmo” Prototipos, Fondos de Becas, Cursos Técnicos, 3-6). Another focus has been the promotion of self-employment by organizing various workshops and activities such as sewing, cooking, and baking as well as micro-enterprise workshops aimed at assisting local entrepreneurs in the challenges of beginning and maintaining a micro-enterprise (EURUS, S.A.P.I. de C.V., <i>Plan de Manejo Social Integrado: Proyecto Eólico EURUS</i>, México, 44-45). Furthermore, the project also led the design and construction of the Centro Comunitario Ecoeficiente La Venta, providing appropriate community space for many of these activities to take place. All of these initiatives will undoubtedly affect the long-term sustainability of the economy of La Venta and the quality of life of its future generations.</p>
		<p><u>Source:</u> ACCIONA Energía. <i>Centro Comunitario Bioclimático Ejidal: Evaluación de los IV Módulos de los Talleres de Corte y Confección</i>. La Venta, México. ACCIONA Energía. <i>Centro Comunitario Ecoeficiente La Venta</i>. ACCIONA Energía. <i>Invitación a Clausura y Exposición de Trabajos Bordado</i>. La Venta, México, 2010. ACCIONA Energía. <i>Reporte Fotográfico: Presentación del Centro Comunitario Ecoeficiente</i>. La Venta, México, 2012. ACCIONA Energía. <i>Reporte Fotográfico: Entrega de mejora de la Cancha de Fútbol Venados</i>. La Venta, México. 2013. EURUS, S.A.P.I. de C.V. <i>Plan de Manejo Social Integrado: Proyecto Eólico EURUS</i>, México.</p>
	98	

SUB CATEGORY:LEADERSHIP		
	Score	EURUS, Mexico
LD1.1 Provide Effective Leadership And Commitment	17	<p>Conserving</p> <p>ACCIONA, the operator of the project, has emphasized sustainability as a core value in their work. As stated in their <i>Política de Sostenibilidad</i>, ACCIONA is committed to sustainable development through the creation and management of energy, water, and service infrastructures and actively contributing to social, environmental, and economic community well-being (ACCIONA Energía, <i>Política de Sostenibilidad</i>, 1). Through this document, they have specifically outlined the company’s principles in regards to sustainability, especially the importance of integrating sustainability across all stakeholders including the company, clients, suppliers, and involved communities. This organizational and project-specific commitment to improve sustainable performance can also be seen in the firm’s Code of Conduct, which outlines the organization’s and employee’s commitment to preserve biodiversity, minimize project impacts on the environment, and seek initiatives that mitigate the impact of climate change as well as its commitment to actively contribute to the socioeconomic development of the communities in which it operates. In addition, the Environmental Management Plan focuses on project-specific initiatives to mitigate the environmental impact of the project, and the <i>Plan de Manejo Social Integrado</i> outlines the project’s analysis and initiatives to improve the socioeconomic conditions of the community of La Venta.</p> <p><u>Source:</u> ACCIONA Energía. <i>Plan de Gestión Ambiental</i>. EURUS, S.A.P.I. de C.V. <i>Plan de Manejo Social Integrado: Proyecto Eólico EURUS</i>, México. ACCIONA Energía. <i>Código de Conducta</i>. Madrid, Spain, 2011. ACCIONA Energía. <i>Política de Sostenibilidad</i>. Madrid, Spain, 2013.</p> <p><u>RECOMMENDATIONS</u> - Provide public statements of leaders in the project owner’s organization regarding their commitment to the principles of sustainability.</p>

<p>LD1.2 Establish A Sustainability Management System</p>	<p>7</p> <p>Superior</p> <p>The project has clearly analyzed and established goals, objectives, and policies that address the full dimensions of sustainability to be addressed. A detailed Environmental Management Plan, an Integrated Social Management Plan, as well as documents showcasing the plans and programs put in place and their verification throughout project development demonstrate that environmental and social performance considerations have been fully addressed. However, there is no documentation indicating that a comprehensive sustainability management system with defined roles and responsibilities within the organization and the project team has been developed. By clarifying the structure and organization of this sustainability management system, the authority of the parties involved to affect change can be validated and made sufficient. This will enable the development of mechanisms sufficient to manage change and handle project complexities where authority and responsibility for sustainability are at high levels in the project team organization.</p> <p><u>Source:</u> ACCIONA Energía. <i>Responsabilidad Social Corporativa: Estudio de Línea de Base Social</i>. La Venta, México, 2014. EURUS, S.A.P.I. de C.V. <i>Plan de Manejo Social Integrado: Proyecto Eólico EURUS, México</i>. EURUS, S.A.P.I. de C.V. <i>Informe Anual de Monitoreo Social y de Medio Ambiente, México: Proyecto Eólico EURUS</i>. La Venta, México. 2014. ACCIONA Energía. <i>Política de Sostenibilidad</i>. Madrid, Spain, 2013. EURUS, S.A.P.I. de C.V. <i>Plan de Vigilancia Ambiental, Fase de Obras</i>. La Venta, México. 2008.</p> <p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Consolidate all sustainability efforts already present in the project into a comprehensive sustainability management system that enables the organization to clarify all its goals, objectives, and policies across all dimensions of sustainability. This begins with the creation of a sustainability policy that defines the scope of the project and the project team’s commitment to sustainability performance improvement. - Clearly assign project roles, responsibilities and authorities for addressing the issues of sustainability in the project. Provide organizational charts and documentation showing which people are responsible for these issues, their position within the project organization, and their authority to make project decisions and affect change. - Develop these measures further by establishing a set of metrics that enable the tracking of progress of the implemented measures.
<p>LD1.3 Foster Collaboration And Teamwork</p>	<p>4</p> <p>Enhanced</p> <p>In the document outlining the design process of EURUS, ACCIONA indicates the stakeholders and their relative responsibilities during each phase of the project. They have established a system of communication and responsibilities between these departments, including the Departments of Business, Energy Resources, Environment, Projects and Civil Engineering. The model follows a traditional project delivery system, where team members work as independent entities and focus on delivering their portion of the project, occasionally in collaboration with another team. No documentation was provided demonstrating that the project team approaches the project as a collaborative system characterized by team effort. There is no mention of team sessions conducted with the owner and the multi-disciplinary project team or design charrettes held to involve a broad set of stakeholders.</p> <p><u>Source:</u> ACCIONA Energía. <i>Procedimiento: Diseño de Parque Eólico</i>. La Venta, Mexico, 2012.</p> <p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Promote the development of an integrated project delivery system, wherein project team members work together early in the planning and design stages of the project to understand how their design assumptions and decisions affect the work of others, positively or negatively. This includes members who are traditionally involved in later stages of the project such as the constructor. - Explore ways to improve performance and reduce costs employing whole systems design methodologies. - Consider a risk-reward sharing strategy as a contractual relationship between the owner and the design team.

<p>LD1.4 Provide For Stakeholder Involvement</p>	<p>5</p>	<p>Enhanced</p> <p>EURUS initiated contact with the community of La Venta in 2006 at the start of the pilot program with the Comisión Federal de Electricidad (CFE) of Mexico. Various meetings were arranged with property owners on site and in surrounding affected areas to discuss the project and to arrive at negotiations for land lease and compensation. EURUS also conducted an initial survey in the community (155 out of 280 identified members) that showed that 70% of those surveyed were in favor of the development of the project (EURUS, S.A.P.I. de C.V., <i>Plan de Manejo Social Integrado: Proyecto Eólico EURUS, México</i>, 17). This information was helpful to identify areas of potential intervention with programs of social investment, and it also initiated a closer relationship with individuals in the community. An EURUS office was established in the area to promote community relations and to attend to any concerns of the population. Further programs that provide for stakeholder involvement include a complaint management plan, a monitoring program, and a consultation program with the community for the construction and operational phases. However, no documentation was provided indicating that specific and significant changes were made based on the feedback resulting from community engagement.</p> <p><u>Source:</u> EURUS, S.A.P.I. de C.V. <i>Plan de Manejo Social Integrado: Proyecto Eólico EURUS, México. Contrato de Usufructo Parcelario</i>, 2007.</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Assess feedback received by community and apply it to project decisions. Actions taken are based on community and stakeholder feedback, modified according to feasibility. - Demonstrate to the public that the public participation process is transparent and that they have an opportunity to provide meaningful input. - Provide letters, memoranda, notes and minutes of meetings with stakeholder groups, as well as documentation of stakeholder-provided input and resulting project decisions made.
<p>LD2.1 Pursue By-Product Synergy Opportunities</p>	<p>0</p>	<p>No Score</p> <p>No documentation was provided indicating the identification, assessment, and use of unwanted by-products from nearby facilities. There were no efforts to look for opportunities to obtain by-products or discarded materials and resources from nearby locations.</p> <p><u>Source:</u> N/A</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Identify managers of facilities nearby who may have by-products or discarded materials that can be used on the project, reflecting an understanding of the principles of industrial ecology. - Develop constructive discussions with regulatory agencies, policymakers, or standard-setting organizations as well as managers of nearby facilities with potential byproducts to pursue opportunities to improve project performance and reduce project costs by using by-products or discarded materials and resources near the site.
<p>LD2.2 Improve Infrastructure Integration</p>	<p>3</p>	<p>Enhanced</p> <p>In the <i>Contrato de Usufructo Parcelario</i>, EURUS stipulates its commitment to the landowners to preserve the existing infrastructure on site and to improve the existing road system within it. This includes ensuring that the operational needs of the wind farm do not affect the natural state and use of the area's soil. In case of any disruption of water supply or other fluxes, the necessary infrastructure projects will be constructed to mitigate these changes ("El Ejido," 6-7). As indicated in the <i>Anexo Fotográfico</i>, figures 3-5, EURUS renovated the existing roads on site and facilitated the construction of other roads to enable circulation within the project site (<i>Anexo Fotográfico</i>, 2-3). No documentation was provided indicating a full infrastructure integration outside of their focus on the internal system, establishing synergies with elements external to the project, assessing the existing community physical infrastructure or designing the project to incorporate its restoration as part of a larger strategic sustainability plan.</p> <p><u>Source:</u> "El Ejido" Comisariado Ejidal de La Venta, Juchitán, Oaxaca. <i>Contrato de Usufructo Parcelario</i>. La Venta, México, 2007. <i>Anexo Fotográfico</i></p>

		<p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Participate in multi-sectoral strategic planning for sustainability, integrating the project into community sustainability plans. - Work with the community to identify existing community elements in the natural and/or built environment that could improve the economic growth and development capacity of the area. Plan and design the project to incorporate the restoration of these elements as part of a comprehensive strategic sustainability plan.
LD3.1 Plan For Long-Term Monitoring & Maintenance	10	<p>Conserving</p> <p>ACCIONA Energía is the responsible for the operation and maintenance of the wind farm. In collaboration with CFE and CEMEX, it has provided operation and maintenance training for its operational staff and has developed a report on the long-term maintenance of the project, specifying maintenance instructions, security and risk prevention, and corrective and preventive maintenance of wind turbines and high tension cables. At the same time, it has also developed a detailed monthly long-term monitoring plan wherein it obtains readings from power meters installed in their substation. These are reported and stored in an electronic system, which has been validated by a third party, SGS Climate Change Programme in United Kingdom, in accordance to the UNFCCC criteria for the Clean Development Mechanism (CDM) and host country criteria.</p> <p><u>Source:</u> ACCIONA Energía. <i>Procedimiento: Mantenimiento de Parques Eólicos</i>. La Venta, México, 2012. UNFCCC/CCNUCC. <i>Monitoring Report</i>. La Venta, Mexico, 2012. UNFCCC/CCNUCC. <i>Revised Monitoring Plan, Annex 4</i>. La Venta, Mexico.</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Designate the individuals or organizations assigned to monitor and maintain the constructed works. - Provide an explanation of how funding will be allocated, set aside, and maintained at sufficient levels to fund the necessary monitoring and maintenance.
		<p>Improved</p> <p>The project identifies and assesses the laws, standards, regulations, and policies associated with its development in regard to quality, safety, and the environment. ACCIONA has created a database outlining each law, its application, specific information on articles and mandates, and the measures taken by the project team to comply to each of these, indicating the degree of completion that the project has achieved thus far. No documentation was provided identifying legislation that unintentionally creates barriers to implementing sustainable infrastructure. Furthermore, there is no effort to assess the negative impacts from conflicting regulations and policies nor mitigating these negative effects.</p> <p><u>Source:</u> ACCIONA Energía. <i>Listado de Requisitos de Calidad, Seguridad y Medio Ambiente</i>. La Venta, México, 2012.</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Identify and assess applicable laws, standards, regulations, and/or policies with requirements that appear to be unintentionally countering sustainability goals, objectives, and practices. - Work with regulators to mitigate the negative effects of the legislation identified previously on the implementation of sustainable infrastructure. - Provide letters, memoranda, and minutes of meetings with regulatory agencies set up to identify and resolve issues, and evidence of the results of those efforts.
		<p>No Score</p> <p>No documentation was provided indicating the design of the project to make construction works more durable and resilient to extend its useful life.</p> <p><u>Source:</u> N/A</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Design the project in a way that adds flexibility to the constructed works, enabling easy reconfiguration and refurbishment. - Enhance durability and resiliency of the design. The longer the useful life of the constructed
LD3.2 Address Conflicting Regulations & Policies	1	
LD3.3 Extend Useful Life	0	

		<p>works, the less it will need to be replaced, reducing substantially the energy, water, and materials required for a rebuild.</p> <ul style="list-style-type: none"> - Incorporate flexibility in the design to increase the possibilities for alternative future uses.
<p>LD0.0 Innovate Or Exceed Credit Requirements</p>	<p>N/A</p>	
	<p>47</p>	

<p>CATEGORY II: CLIMATE AND ENVIRONMENT</p>		
<p>RESOURCE ALLOCATION</p>		
	<p>Score</p>	<p>EURUS, Mexico</p>
<p>RA1.1 Reduce Net Embodied Energy</p>	<p>0</p>	<p>No Score</p> <p>No documentation was provided demonstrating that a life-cycle energy assessment was performed estimating the net embodied energy of project materials. There is no evidence that any demonstrable energy savings are achieved as compared to industry norms as a result of this assessment.</p> <p><u>Source:</u> N/A</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Develop a life-cycle energy assessment where the initial embodied energy from project materials’ extraction, refinement, and manufacture is calculated. - Using the embodied energy data obtained, design the project to produce a 10-100% reduction in embodied energy over the project life. This may include reducing the quantity of materials and selecting materials with lower embodied energy.
<p>RA1.2 Support Sustainable Procurement Practices</p>	<p>2</p>	<p>Improved</p> <p>ACCIONA Energía has developed detailed guidelines indicating their principles and commitments as a company regarding the selection of suppliers, contractors, and collaborators. Among the parameters indicated, these selections follow ACCIONA Energía’s sustainability principles and standards for quality and environment. As demonstrated in their example of a purchase order, ACCIONA expects its suppliers, contractors, and collaborators to have an effective environmental policy seeking to combat climate change and conserve biodiversity, as well as design processes that ensure an efficient use of available resources (ACCIONA Energía, <i>Ejemplo Orden de Compra</i>, 6.). At the same time, the document details ACCIONA’s expectations regarding the respect of human and social rights, requiring their suppliers, contractors, and collaborators to eradicate child labor, reject employment discrimination, and provide a workplace of dignity and respect. Furthermore, ACCIONA has developed a detailed evaluation system conducted before hiring and during project development, wherein companies are subject to an evaluation of various categories including sustainability. As indicated on page 25, they must be evaluated according to transparency and ethics in sustainability, human rights and social action, security and health, and quality and environment (ACCIONA Energía, <i>Procedimiento Corporativo: Homologación y Evaluación de Proveedores</i>, 6). However, there are no policies or practices in place regarding the procurement of materials from suppliers that have incorporated sustainability policies.</p> <p><u>Source:</u> ACCIONA Energía. <i>Ejemplo Orden de Compra</i>. Oaxaca, México, 2014. ACCIONA Energía. <i>Anexo: Política Corporativa</i>. ACCIONA Energía. <i>Procedimiento Corporativo: Homologación y Evaluación de Proveedores</i>. 2013.</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Refine criteria for selection of manufacturers and suppliers to include policies regarding material selection, ensuring the reliance on third-party certified materials and supplies. - Develop clear supplier performance specifications stating the characteristics of the products and materials to be supplied, packaging, use, disposal and product take back. Showcase an increased emphasis on supplier social and ethical performance.

		- Provide documentation from manufacturers or suppliers to demonstrate that sustainable practices are employed for a percentage of purchased products.
RA1.3 Used Recycled Materials	0	<p>No Score</p> <p>No documentation was provided demonstrating that the project uses recycled materials, specifying reused materials and including structures and material with recycled content to reduce the use of virgin materials and avoid sending useful materials to landfills.</p> <p><u>Source:</u> N/A</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Identify the appropriate reuse of existing structures and materials on site and incorporate them into the project. - Develop an inventory of project materials specifying recycled content. The inventory should include the name of the product, the name of the manufacturer, the weight or volume of the material, and the percentage of recycled content. - Calculate the percentage of total project materials by weight or volume that are reused or recycled.
RA1.4 Use Regional Materials	0	<p>No Score</p> <p>No documentation was provided indicating that the project minimizes transportation costs and impacts or retains regional benefits through specifying local sources. The project must have at least 30% of its materials be locally sourced to score in this credit.</p> <p><u>Source:</u> N/A</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Identify locally sourced materials, plants, aggregates, and soils. - Calculate the percentage of total project materials by cost that are locally sourced. Reused materials, either on-site or sourced within a 300 mile radius, and materials harvested on-site, including retained plants, count towards meeting the credit requirements. - Achieve at least a 30% of locally sourced materials for project.
RA1.5 Divert Waste From Landfills	3	<p>Improved</p> <p>In the document <i>Manejo y Disposición Final de Residuos</i>, ACCIONA provides an inventory of all hazardous and non-hazardous waste generated during the construction and operation phases of the project. Each waste type is first identified according to how it was generated, and then its management is indicated, detailing how it was managed within the project and how it was disposed of. For instance, waste generated from excavation and cleaning will be incorporated into the soils on-site, leftover wood will be reutilized in the project when possible and then donated to the community and/or deposited in authorized landfills, and metal will be reutilized, donated, and sent to recycling centers. The remaining waste will be either donated or disposed of in designated centers in the area. It is important for the project to establish a set of metrics to indicate the percentage of material diverted from landfills and the system of measurement and tracking of this process put into place.</p> <p><u>Source:</u> ACCIONA Energía. <i>Instrucción: Manejo y Disposición Final de Residuos</i>. Oaxaca, México.</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Include the volume or weight of anticipated waste generation in order to be able to compare to industry norms. - Provide an inventory of project waste streams and potential sites for acceptable reuse or recycling. - Calculate the total waste reduction measures and percentage of materials diverted to recycling or reuse. These should be calculated as the ratio of material diverted from landfills against the total waste generated during construction or operation.

<p>RA1.6 Reduce Excavated Materials Taken Off Site</p>	<p>6</p>	<p>Conserving</p> <p>The project has re-used all excavated materials on site. EURUS compiled a detailed report specifying the dimensions, characteristics, and process involved with preparing the site for the installation of the wind turbines. This included the removal of the topsoil layer at areas of intervention as well excavation in areas of deeper intervention. The soils that were removed as part of the initial preparation of the project site were re-utilized at the end of the project during the environmental restoration phase for the areas of temporary occupation. For areas that required excavation for the foundations of the structures and wind turbines as well as drainage work, the volume of soils removed was approximately 60,000 m³ (EURUS, S. A. P. I. de C. V., 9). This amount was later re-utilized for the formation of embankments in other areas of the project.</p> <p><i>Source:</i> EURUS, S. A. P. I. de C. V. <i>Informe de Construcción y Regeneración Ambiental de Áreas de Uso Temporal y Estrategia de Manejo de Parcelas Fraccionadas.</i> Juchitán de Zaragoza, Oaxaca, México, 2012. <i>Disposición de Despalme.</i> La Venta, México, 2008.</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Provide design documents for industry norms and estimations of the excavated material taken off site. - Provide design documents demonstrating how the project was designed to balance cut and fill. - Provide calculations of the percentage of useful material retained on site above the industry norm, meaning at least 30%.
<p>RA1.7 Provide for Deconstruction & Recycling</p>	<p>0</p>	<p>No Score</p> <p>There is no documentation indicating that the project encourages future recycling, up-cycling, and reuse by designing for ease and efficiency in project disassembly or deconstruction at the end of its useful life.</p> <p><i>Source:</i> N/A</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Expand the scope of the project to include more life cycle elements beyond construction. This might include designing to include flexibility for increasing the possibility of alternative future uses or other end-of-life considerations such as recycling and upcycling materials and equipment. - Provide an inventory of materials incorporated into the design that retains some value for the future and calculate a general percentage of total materials by cost, weight, or volume likely to be recycled at end of life. - Provide evidence that the design team has facilitated future disassembly and recycling of materials.
<p>RA2.1 Reduce Energy Consumption</p>	<p>0</p>	<p>No Score</p> <p>No documentation was provided indicating that the project has conserved energy by reducing overall operation and maintenance energy consumption throughout the project life cycle.</p> <p><i>Source:</i> N/A</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Identify and analyze opportunities for reducing energy consumption in the operation and maintenance of the constructed works. - Specify energy efficient equipment and processes and incorporate systems level thinking early in the design process in order to periodically re-evaluate energy needs and significantly reduce energy consumption throughout the project. - Develop an inventory of energy saving methods to be considered, including a feasibility and cost analysis.

<p>RA2.2 Use Renewable Energy</p>	<p>20</p>	<p>Restorative</p> <p>The project generates a net positive amount of renewable energy. EURUS is a wind farm consisting of 167 wind turbines of 1,500 kW each, associated control facilities, and a 230 kV and 19 km long line connecting to the CFE transformer (UNFCCC, <i>Project Design Document Form (CDM PDD)</i>, (2009), 3-6.). The wind farm generates 250.5 MW of energy and is expected to produce 989.5 GWh of renewable energy per year.</p> <p><u>Source:</u> UNFCCC. <i>Project Design Document Form (CDM PDD)</i>. 2009. UNFCCC. <i>Monitoring Report Form (F-CDM-MR)</i>. Mexico, 2012.</p> <p><u>RECOMMENDATIONS</u></p> <p>- Generate a net energy budget listing energy generation and consumption, demonstrating quantitatively the net positive amount of renewable energy generated despite the wind farm’s energy consumption.</p>
<p>RA 2.3 Commission & Monitor Energy Systems</p>	<p>11</p>	<p>Conserving</p> <p>EURUS has developed a long-term monitoring plan where it obtains monthly readings from power meter equipment installed at their substation. Data is collected and stored during the entire crediting period. The monitoring of the power generation is done through monthly invoices and official letters issued by the Comisión Oficial de Electricidad, CFE, which are sent at the beginning of every month (UNFCCC/CCNUCC, <i>Monitoring Report</i>, 6.). Based on the results of the monitoring plan, EURUS established a methodology for calculating the impact on baseline net greenhouse gas emissions resulting from electricity generation in fossil fuel fired power plants.</p> <p><u>Source:</u> UNFCCC/CCNUCC. <i>Monitoring Report</i>. La Venta, Mexico, 2012. UNFCCC/CCNUCC. <i>Revised Monitoring Plan, Annex 4</i>. La Venta, Mexico.</p> <p><u>RECOMMENDATIONS</u></p> <p>- Incorporate monitoring systems such as energy sub-meters to enable more efficient operations and monitoring of energy consumption produced by daily operations during the project life cycle.</p>
<p>RA3.1 Protect Fresh Water Availability</p>	<p>17</p>	<p>Conserving</p> <p>The design of the project will protect the availability of fresh water in the area. EURUS is located in the hydrological region of the Tehuantepec basin Laguna Superior e Inferior. To the east of the project site lies the Río de Los Perros and to the west, Río Espíritu Santo. Neither of these rivers will be affected by the project, as the project does not require the consumption of water nor the modification of the river channels (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental (MIA)</i>, 75). There are existing water contamination issues in the area due to industrial waste and agrochemicals, but the project will not exacerbate these environmental problems. The project involved minimal use of water for the construction phase, mainly for irrigation of roads and concrete creation. For the operational phase, the project does not require any water consumption, with the exception of potable water and sanitary use, nor the modification of any bodies of water (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental (MIA)</i>, 55, 58, 75). Furthermore, the project includes a comprehensive drainage system and runoff controls associated with the development of new embankments to mitigate any possible changes that the project design might present to the flow of water on site, and therefore, the availability of fresh water in these waterways.</p> <p><u>Source:</u> EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i>. La Venta, México, 2006. ACCIONA Energía. <i>Gestión Integral del Agua</i>. La Venta, México, 2013.</p> <p><u>RECOMMENDATIONS</u></p> <p>N/A</p>
<p>RA3.2 Reduce</p>	<p>0</p>	<p>No Score</p>

<p>Potable Water Consumption</p>		<p>There is no documentation indicating the reduction of overall potable water consumption or the promotion of the use of greywater, recycled water, and stormwater to meet water needs.</p> <p><i>Source:</i> ACCIONA Energía. <i>Gestión Integral del Agua</i>. La Venta, México, 2013.</p> <p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Identify potable water reduction strategies during operation and maintenance of the project, considering alternatives such as non-potable water, recycled greywater, and stormwater. - Develop a feasibility and cost analysis to determine the most effective methods for potable water reduction to incorporate into the design. - Calculate the estimated annual water consumption over the life of the project to be able to compare its performance against industry norms as a benchmark.
<p>RA3.3 Monitor Water Systems</p>	<p>0</p>	<p>No Score</p> <p>No documentation was provided indicating the implementation of programs to monitor water systems performance during operations or the project’s impact on receiving waters. However, the project does not involve the deployment of water systems for its operation.</p> <p><i>Source:</i> N/A</p> <p>RECOMMENDATIONS N/A</p>
<p>RA 0.0 Innovate Or Exceed Credit Requirements</p>		<p>N/A</p>
<p>59</p>		

<p style="text-align: center;">NATURAL WORLD</p>		
	<p>Score</p>	<p>EURUS, Mexico</p>
<p>NW1.1 Preserve Prime Habitat</p>	<p>9</p>	<p>Superior</p> <p>As indicated in the <i>Manifestación de Impacto Ambiental (MIA)</i>, the project was sited in La Venta, located in the region of Juchitán de Zaragoza in Oaxaca in the Istmo de Tehuantepec, an area consisting of flat land with a dominant wind force with a potency of class 6 and 7 and an environment that is humid yet not saline. The current land use of the project site is agricultural and livestock. The area was previously modified due to the agricultural use of the land, so the project is not inducing any additional alterations or destruction of the habitat. According to the Atlas Regional del Istmo de Tehuantepec from the Instituto de Geografía de la Universidad Nacional Autónoma de México, there are no ecological systems in the project area, demonstrating that there are no prime habitats located on-site or within specific distances of the developed area. The nearest prime habitat corresponds to the region of Salina Cruz, Oaxaca (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental (MIA)</i>, 51-53). Figure 15 indicates La Venta in relation to priority regions for the environmental conservation of the project area, showing a significant distance between the project site and surrounding prime habitats. The project site has two major types of vegetation: temporary agriculture and remnants of deciduous forest with secondary vegetation. The turbines are not expected to affect the soils, as their bases are in separate foundations, which isolates them from natural soils. There are no migratory routes or biological corridors of species in this zone and it is also not an area of importance for aviary conservation. The project is not located within a natural protected area.</p> <p><i>Source:</i> EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i>. La Venta, México, 2006.</p>

		<p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Provide more specific documentation indicating that the existing prime habitats near the project site have been protected by establishing a minimum 300 ft. natural buffer zone between them and the developed project. - Shift from avoidance and maintenance of prime habitats to restoration by developing a restoration plan for the area, significantly increasing the areas of prime habitat and connectivity to them. This could be done by producing habitats that are part of a protective buffer zone in the site of the project or adjacent to the site.
<p>NW1.2 Preserve Wetlands and Surface Water</p>	<p>1</p>	<p>Improved</p> <p>The project is located on flat land and its surroundings correspond to a cumulative and erosive floodplain. Outside of the project area there are low elevations of heights less than 200 m with limited fluvial dissection. The project is located in the hydrological region of the Tehuantepec basin of Laguna Superior e Inferior, where there are bodies of water that are sourced from the surface currents of Los Perros and Espíritu Santo. The rivers Río de Los Perros and Espíritu Santo, located to the east and west of the project respectively, will not be affected by the project. The project site in relation to these bodies of water can be seen in Figure 16 (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental (MIA)</i>, 55). Furthermore, the project does not require any consumption of water nor modification of water bodies. No documentation was provided clarifying the buffer between wind turbines and the water's edge or verifying whether excavation and leveling was done on the determined buffer zone area.</p> <p><u>Source:</u> ACCIONA Energía. <i>As Built Layout</i>. La Venta, México, 2011. EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i>. La Venta, México, 2006.</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Aside from avoiding development within 15 m (50 feet) from a body of water, as already done by the project, establish a vegetation and protection zone (VSPZ) at least 100 m (300 feet) away from any body of water. Activities prohibited in this buffer zone would include construction of any structure or road, non-native vegetation removal, and grading, filling, dredging or excavation. If applicable, restore previously degraded buffer zones to a natural state as part of establishing the VSPZ.
<p>NW1.3 Preserve Prime Farmland</p>	<p>6</p>	<p>Superior</p> <p>The project is located in an area of quaternary soils. According to the Atlas Regional del Istmo de Tehuantepec, the existing soils are chromic vertisol, suitable for agriculture. Currently there are temporary farmlands, pastures, small areas of deciduous forest, and isolated shaded areas for cattle. No specific designation of the area as prime farmland, unique farmland, or farmland of statewide importance has been provided (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental (MIA)</i>, 55, 58). The project installation requires sufficient space between wind turbines to prevent any interference with air flux, allowing agricultural activities to continue around them. The only affected lands are those where the turbines and substation park are physically located. Nonetheless, the change from agriculture to industry in these areas will only have a temporary impact during the project lifespan and is completely reversible.</p> <p><u>Source:</u> EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i>. La Venta, México, 2006.</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Identify soils designated as prime or unique farmland. If prime farmland is identified on site, establish a Vegetation and Soil Protection Zone (VSPZ) where no more that 10% of the area can be developed. If applicable, restore previously developed areas deemed prime farmland into a productive state.

<p>NW1.4 Avoid Adverse Geology</p>	<p>1</p>	<p>Improved</p> <p>The project is located on flat land and its surroundings correspond to a cumulative and erosive floodplain (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental (MIA)</i>, 55, 57). The project site belongs to the hydrological region of Tehuantepec, of the Laguna Superior e Inferior basin, where superficial waterways are located. The rivers Los Perros and Espíritu Santo, for instance, are located within the project site, but will not be affected by the project. The geosystems are illustrated on the information provided but no detailed information on specific geologic formations are indicated in the documentation.</p> <p><u>Source:</u> EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i>. La Venta, México, 2006.</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Develop site investigations to identify and delineate geologic formations such as earthquake faults, low lying coastal areas, and aquifers, including the location of the project site relative to these features. If applicable, develop plans and designs to reduce the risk of damage that these elements may cause, establishing operating procedures and a monitoring program for adverse geologic impacts.
<p>NW1.5 Preserve Floodplain Functions</p>	<p>5</p>	<p>Enhanced</p> <p>EURUS is being developed on a site with no prominent elevations or depressions. The site is rather situated within a cumulative and erosive floodplain, which indicates that there could be adverse impacts from flooding. As part of the site preparation, the project has identified four zones of four different types of embankments. Each will have a determined slope to facilitate the movement of water and to prevent erosion by rain water currents. Drainage will also be installed to facilitate this process (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental (MIA)</i>, 25-26). This drainage system will consist of PVC tubes with a 500 mm diameter, working to collect water in the ditches along the site roads.</p> <p><u>Source:</u> EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i>. La Venta, México, 2006.</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Prepare a flood emergency plan, maintaining or enhancing the riparian and in-channel physical and vegetative habitat to support threatened and endangered or otherwise desirable species. - Provide thorough analysis of the floodplain, such as documentation showing the location of the project relative to the 100-year or design floodplain, illustrating that pre- and post-floodplain storage and elevations to demonstrate that the project does not increase flood elevations outside of project easements. - Enhance connectivity and sediment transport by modifying or removing structures that are frequently damaged by floods.
<p>NW1.6 Avoid Unsuitable Development on Steep Slopes</p>	<p>6</p>	<p>Conserving</p> <p>EURUS is being developed on a site with no prominent elevations or depressions. The project is located on flat land and its surroundings correspond to a cumulative and erosive floodplain, therefore avoiding development on steep slopes.</p> <p><u>Source:</u> EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i>. La Venta, México, 2006.</p> <p><u>RECOMMENDATIONS</u> N/A</p>
<p>NW1.7 Preserve Greenfields</p>	<p>0</p>	<p>No Score</p> <p>According to the <i>Envision Manual Glossary</i> (p.171), greenfields are undeveloped land in a city or rural area that are being considered for development. Greenfields may contain natural landscape, natural amenities, or agricultural land. As the project is being developed on agricultural land, it is therefore not preserving greenfields without any other part of the land identified as a greyfield.</p>

		<p><u>Source:</u> EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i>. La Venta, México, 2006</p> <p><u>RECOMMENDATIONS</u> - Conserve undeveloped land by locating projects on previously developed greyfield and/or sites classified as brownfields.</p>
NW2.1 Manage Stormwater	9	<p>Superior</p> <p>Although the development of the project can modify the flow of stormwater on site since it requires the movement of topsoils for the formation of platforms and foundations, the developed embankments have a slope that facilitates the exit of water, guaranteeing sustainable stormwater management since these slopes were determined in a way that would prevent the erosion of soils by water currents (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental (MIA)</i>, 25-26). ADS drainage tubes were put in place as part of these embankments at 60 cm and 150 cm to facilitate drainage based on soil types in the respective areas. The documentation does not indicate the decrease of the storing capacity vs. the pre-development stage.</p> <p><u>Source:</u> EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i>. La Venta, México, 2006. EURUS, S. A. P. I. de C. V. <i>Informe de Construcción y Regeneración Ambiental de Áreas de Uso Temporal y Estrategia de Manejo de Parcelas Fraccionadas</i>. Oaxaca, México, 2012.</p> <p><u>RECOMMENDATIONS</u> - Determine and document the initial, post-development, and target water storage, infiltration, evaporation, water harvesting and/or cistern storage capacities. For greenfields, the target water storage capacity is the site's water storage capacity previous to the development of the project. - Create and develop an erosion, sedimentation, and pollution control plan for all construction activities associated with the project.</p>
NW2.2 Reduce Pesticides and Fertilizer Impacts	0	<p>No Score</p> <p>No documentation was provided indicating the reduction of pesticides and fertilizers' quantity, toxicity, bioavailability and persistence, or the possible elimination of the use of these materials.</p> <p><u>Source:</u> N/A</p> <p><u>RECOMMENDATIONS</u> - Put in place operational policies to control the application of fertilizers and pesticides on site. Install runoff controls to minimize groundwater and surface water contamination. - Provide plans and drawings showing how these controls would be designed and installed. If applicable, demonstrate that the mix of pesticides and fertilizers to be used on the finished project have low toxicity, persistence, and bioavailability.</p>
NW2.3 Prevent Surface and Groundwater Contamination	4	<p>Enhanced</p> <p>Waste generation on site is mainly the result of the agricultural and livestock activities that take place. The generation of wind energy will not produce any waste (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental (MIA)</i>, 74). The construction phase and some aspects of the maintenance process will generate minimal waste. A waste management and disposal plan has been developed for the project, outlining waste types (hazardous and non-hazardous) according to the different phases of the project. Each generated waste is catalogued in terms of which process generated it, what it is affecting, and how to dispose of it. Efforts to re-utilize, recycle, and re-locate waste off-site to prevent contamination of the ground are evident throughout the plan (ACCIONA Energía, <i>Instrucción: Manejo y Disposición Final de Residuos</i>, 3-12.). The project has also developed a detailed contingency plan for the disposal of hazardous substances on site soils. This plan specifies spill prevention and cleanup processes and outlines the associated leadership responsibilities of the project team (ACCIONA Energía, <i>Atención a Contingencias por Vertido de Sustancias Peligrosas al Suelo Natural</i>, 2-7). However, no documentation specifies that a long term water quality</p>

		<p>monitoring system has been established to calculate water quantity and quality and monitor any impact that the project has on the existing surface water on site.</p> <p><u>Source:</u> ACCIONA Energía. <i>Instrucción: Manejo y Disposición Final de Residuos</i>. Oaxaca, México. ACCIONA Energía. <i>Atención a Contingencias por Vertido de Sustancias Peligrosas al Suelo Natural</i>. La Venta, México, 2012. EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i>. La Venta, México, 2006.</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Establish adequate and responsive surface water quantity and quality monitoring systems. - Provide documentation establishing that there is no direct connection to receiving waters from the site of the construction works, or that an appropriate monitoring program is implemented to verify pollutant loading, biological impact, and impact on receiving water flow.
<p>NW3.1 Preserve Species Biodiversity</p>	<p>2</p>	<p>Improved</p> <p>As part of the <i>Manifestación de Impacto Ambiental (MIA)</i>, EURUS has identified the fauna on site and developed specific studies on aviary and land species. The land vertebrates identified are the armadillo, iguana, and rabbit, and the aerial fauna present in the region include the pigeon, quail, osprey, lark, magpie, sparrow and chachalaca. Within this group, there is a species of quail that is listed as requiring special protection by the NOM-059-SEMARNAT, the codorniz bolonchaco (<i>Odontophorus guttatus</i>). The project will modify the habitat due to the removal of portions of the vegetation cover, which potentially affects the habitat for the present fauna. This impact is considered to be minimal as the habitat for the fauna on site was severely affected when the site was previously altered for agricultural purposes, with the removal of the natural vegetation of the previously existing deciduous forest. The impacts of the removal of topsoils in the project area are considered to be temporary and reversible (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental (MIA)</i>, 83). EURUS also developed a <i>Plan de Vigilancia Ambiental</i>, seeking to establish a monitoring and mitigation plan for environmental protection. For each project phase, a visual inspection and report of susceptible fauna and habitats will be performed and a specific rescue and relocation plan has been developed for affected species, annexed on page 13 (EURUS, S. A. P. I. de C. V., <i>Plan de Vigilancia Ambiental, Fase de Obras</i>, 13-30). A monitoring program was established to register the impact of the wind turbines on bird migration, paying particular attention to the quail species under protection. The post-construction report of 2013-2014 for aviary monitoring in the plant indicated 320 bird deaths as a result of the operations of the plant, including 16 species under protection. Based on these results new recommendations for mitigating measures were established, such as the reduction of unnecessary lighting, the stopping of wind turbines at certain migration times and adverse climate conditions, and the installation of deterrent devices on the high transmission line to prevent birds from approaching.</p> <p><u>Source:</u> EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i>. La Venta, México, 2006. EURUS, S. A. P. I. de C. V. <i>Plan de Vigilancia Ambiental, Fase de Obras</i>. La Venta, México, 2008. EURUS, S. A. P. I. de C. V. <i>Reporte Post-Construcción 2013-2014 del Monitoreo de Aves en la Central Eólica EURUS</i>. La Venta, México, 2014.</p>

		<p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Shift from protection to enhancement and restoration of habitats. Develop an analysis of existing habitats on site and outline strategies for mitigation of disturbed habitats. This may include GIS analyses and surveys outlining movement corridors between habitat areas and potential barriers to these corridors on-site. - Extend the bird monitoring plan for the lifespan of the project instead of the already established 1 year timeframe. - Develop habitat improvement strategies to ensure that existing habitats are protected and upgraded, while also restoring and creating new habitats, improving and expanding wildlife corridors and existing habitats.
NW 3.2 Control Invasive Species	11	<p>Restorative</p> <p>The project has developed a detailed study and program for the control of rodents in the area. Rodents were identified as a population of about 1,700 species that has invaded various wind farms in the region of Istmo de Tehuantepec. The most affected areas, nests, and the size of the rodent populations were identified. During a year of monthly samplings of five consecutive nights, a program was put in place for the capture of rodents using different types of traps. Estimates of the population will be analyzed to develop mid- and long-term programs for the control of future invasive species at the wind farms, including traps, weeds control, trash and accumulation of materials and waste.</p>
		<p><i>Source:</i> Dr. Miguel Briones-Salas, <i>Programa de Manejo Integrado para el Control de Roedores en un Parque Eólico, Istmo de Tehuantepec, Oaxaca</i></p>
		<p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Provide a list and map of all invasive species in the region found on or within 1000 m of the site. Present a management/maintenance plan outlining strategies for minimizing the potential for invasive species to re-appear or enter the site, as well as strategies of monitoring and removing invasive species in the future.
NW3.3 Restore Disturbed Soils	8	<p>Conserving</p> <p>The project has developed a detailed report concerning the construction and environmental regeneration of the site. It includes the environmental restoration of areas of temporary use during construction. After mounting the wind turbines, a restoration process was begun to return paths to their original 4 m thickness, finalized in a 6 m thickness using the topsoil that was previously removed to perform the construction work (EURUS, S. A. P. I. de C. V., <i>Informe de Construcción y Regeneración Ambiental de Áreas de Uso Temporal y Estrategia de Manejo de Parcelas Fraccionadas</i>, 13-15).</p>
		<p><i>Source:</i> EURUS, S. A. P. I. de C. V. <i>Informe de Construcción y Regeneración Ambiental de Áreas de Uso Temporal y Estrategia de Manejo de Parcelas Fraccionadas</i>. Oaxaca, México, 2012.</p>
		<p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> - Illustrate in plan the soil restoration activities, including areas of disturbance and areas restored. Show calculations that prove that 100% of the disturbed soils have been restored.
NW3.4 Maintain wetland and surface water functions.	15	<p>Conserving</p> <p>The project does not negatively affect any of the four variables considered in this credit: maintenance of hydrologic connection, water quality, the function of superficial water bodies as habitat, and sediment transportation. The area where the project is located belongs to the hydrological region of Tehuantepec, basin of Laguna Superior e Inferior, where there are bodies of water that receive their water from the surface currents of Los Perros and Espíritu Santo. The rivers Río de Los Perros and Espíritu Santo, located to the east and west of the project respectively, will maintain their function as ecosystems as the project does not require any consumption of water nor modification of water bodies (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental</i>, 75). A detailed report evaluating the impact of project development on water was developed to establish the environmental impact of water use according to the three phases of the project: site preparation, construction, and operation/maintenance. These involved minimal impacts such as irrigation, human consumption, and sanitary uses.</p>

		<p><u>Source:</u> ACCIONA Energía. <i>Gestión Integral del Agua</i>. La Venta, México, 2013. EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i>. La Venta, México, 2006.</p> <p><u>RECOMMENDATIONS</u></p> <ul style="list-style-type: none"> - Provide documentation showing the current source of the rivers' normal flow, the water quality of its source water, and how the water quality will be maintained or enhanced throughout the project lifespan. - Perform a habitat survey of the water body and reference areas near the wind turbines, and make a plan to maintain and enhance the habitat for aquatic and riparian species through plantings and appropriate physical modifications. - Indicate whether the project maintains or restores sediment transportation in the area.
NW 0.0 Innovate Or Exceed Credit Requirements		N/A
	77	

CLIMATE AND RISK		
	Score	EURUS, Mexico
CR1.1 Reduce Greenhouse Gas Emissions	25	<p>Restorative</p> <p>This project involves electricity generation from a renewable source and does not involve the use of fossil fuels. Therefore, there are no greenhouse gas emissions associated with the activity of the project (UNFCCC/CCNUCC, <i>Monitoring Report</i>, 12). The project is estimated to reduce CO₂ emissions by 6,031,828 tons of CO₂ during a 10 year crediting period (UNFCCC/CCNUCC, <i>Project Design Document Form: Clean Development Mechanism</i>, 9). EURUS has developed a monthly monitoring plan wherein it obtains readings from power meters installed in their substation. These are reported and stored in an electronic system, which has been validated by a third party, SGS Climate Change Programme in United Kingdom, in accordance to the UNFCCC criteria for the Clean Development Mechanism (CDM) and host country criteria. Based on the results of the monitoring plan, EURUS established a methodology for calculating the impact on baseline net greenhouse gas emissions resulting from electricity generation in fossil fuel fired power plants. From this calculation, they are able to determine how many greenhouse gas emissions they are avoiding through renewable energy generation. For instance, at the end of the twelfth verification system in 2012, a total of 186,975 tons of CO₂ had been reduced from an expected ex-ante calculation of 150,796 tons (UNFCCC/CCNUCC, <i>Monitoring Report</i>, 2).</p>
		<p><u>Source:</u> UNFCCC/CCNUCC. <i>Monitoring Report</i>. La Venta, Mexico, 2012. UNFCCC/CCNUCC. <i>Revised Monitoring Plan, Annex 4</i>. La Venta, Mexico. UNFCCC/CCNUCC. <i>Project Design Document Form: Clean Development Mechanism</i>. La Venta, Mexico. SGS Climate Change Programme. <i>Validation Report</i>. United Kingdom, 2008.</p>
		<p><u>RECOMMENDATIONS</u> N/A</p>
CR1.2 Reduce Air Pollutant Emissions	12	<p>Conserving</p> <p>Given the nature of the project as a renewable energy generator, each kW/h of electricity generated by the project will prevent the emission of 0.60 kg of CO₂ and air pollutants such as 1.33 gr. of SO₂ and 1.67 gr. of NO_x (EURUS, S. A. P. I. de C. V., <i>Manifestación de Impacto Ambiental (MIA)</i>, 73). Minimal dust generation took place during the construction phase of the project and was mitigated through irrigation and the use of tarps to cover vehicles transporting materials. EURUS has also developed a series of mitigation strategies for the air pollutant emissions associated with the vehicles and equipment utilized in the project during all phases. This includes following maximum limits for hydrocarbon emissions of vehicles according to NOM-042-SEMARNAT-2003. In the analysis conducted there is no evidence of</p>

		<p>the measurement of every single criteria pollutant (carbon monoxide, lead, nitrogen dioxide, ozone, particle pollution, and sulfur dioxide), but just some of them.</p> <p><u>Source:</u> EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i>. La Venta, México, 2006. EURUS, S. A. P. I. de C. V. <i>Plan de Vigilancia Ambiental</i>. La Venta, México, 2008.</p> <p><u>RECOMMENDATIONS</u> - Provide documentation of expected emissions and prevention plans for all six criteria pollutants (particulate matter, ground level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, lead, and noxious odors).</p>
CR2.1 Assess Climate Threat	0	<p>No Score</p> <p>No documentation was provided indicating the development of a comprehensive Climate Impact Assessment and Adaptation Plan assessing the vulnerability, risk, and adaptation of the project amid climate threats.</p> <p><u>Source:</u> N/A</p> <p><u>RECOMMENDATIONS</u> - Develop a Climate Impact Assessment and Adaptation Plan identifying climate change risks and possible responses. The plan should take into account the impacts of a changing climate on the range of operating conditions assumed in the design of the project. These include sea level rise, higher ambient temperatures, increased frequency and intensity of storms, flooding, extended droughts, etc. The plan should assess the risk of changing conditions to the efficient operation of the constructed works as well as to the operation of other related infrastructure. The plan should also address recovery from extreme events. This would include calculating or locating expected changes in flood elevations and sea level rise for the project location and developing an inventory of structures in the areas of possible inundation that are important to the successful operation of the project. - Engage the community during the planning process as well as the local emergency management department</p>
CR2.2 Avoid Traps And Vulnerabilities	0	<p>No Score</p> <p>The EURUS project team has not provided any documentation on the avoidance of traps and vulnerabilities that could create high long-term costs and risks for affected communities.</p> <p><u>Source:</u> N/A</p> <p><u>RECOMMENDATIONS</u> - Evaluate the possible resource constraints and vulnerabilities that the community could face in the future due to climate change and identify potential approaches and practices to address them. Work directly with decision makers and stakeholders in the community to evaluate these potential resource issues in more detail and reach a more integrated risk assessment. - Assess long term risks and consider alternatives, and outline potential traps (resource, configuration, and standards traps) and vulnerabilities as well as associated potential costs and risks.</p>
CR2.3 Prepare For Long-Term Adaptability	0	<p>No Score</p> <p>No documentation was provided demonstrating the preparation of the project for resiliency in the face of long-term climate change, adequate performance under altered climate conditions, or adaptation to other long-term change scenarios.</p> <p><u>Source:</u> N/A</p> <p><u>RECOMMENDATIONS</u> - Identify specific measures taken to address the potential consequences of long-term climate change such as sea level rise, increased intensity and frequency of extreme weather events, extended droughts, heat waves, increased ambient temperatures, and others. Some of these strategies might include structural changes, decentralized systems, natural systems with green infrastructure solutions, alternative supply options, adaptive capabilities, and site selection.</p>

		- Provide plans, designs, and documents that show restoration and rehabilitation efforts. Implement strategies that prepare for or mitigate the negative consequences of climate change, or other significant alterations in environmental and operating conditions.
CR2.4 Prepare For Short-Term Hazards	10	Superior
		EURUS has developed a series of documents related to short-term emergency control. These include the documentation of environmental hazards, indicating the existing environmental risks on site as well as the development of mitigation strategies for each type of hazard. The project has also developed a comprehensive emergency plan, a simulacrum script, and a record of any environmental incidents that take place during the project life.
		<i>Source:</i> ACCIONA Energía. <i>Control de Emergencias</i> . La Venta, Mexico, 2012.
		RECOMMENDATIONS - Provide a list of anticipated natural hazards in the area and their predicted frequency and severity, including but not limited to wildfires, floods, tornadoes, hurricanes, earthquakes, tsunamis, and man-made hazards. - Explain the strategies in the project that are meant to cope with each event and how they surpass existing codes and regulations. Provide documentation of strategies used and how they minimize the risk of future hazards using environmental restoration.
CR2.5 Manage Heat Island Effects	0	No Score
		No documentation was provided indicating the reduction of localized heat accumulation or the management of microclimates.
		<i>Source:</i> N/A
		RECOMMENDATIONS - Provide drawings showing all non-roof non-vegetated areas of the site and the surfacing material (mainly on the office buildings areas). - Provide documentation of all shaded areas, assumed at noon on summer solstice, and a list of plant species used and expected growth rates showing projected shading five years from planting. - Provide documentation of roof or surface areas, surface material, and corresponding solar reflectance index (SRI).
CR0.0 Innovate Or Exceed Credit Requirements		N/A
	47	
OVERALL:	328	EURUS, Mexico

APPENDIX E: SOURCES

DOCUMENTATION PROVIDED	
General Information.	

ACCIONA Energía. <i>Centro Comunitario Bioclimático Ejidal: Evaluación de los IV Módulos de los Talleres de Corte y Confección.</i> La Venta, México.
ACCIONA Energía. <i>Invitación a Clausura y Exposición de Trabajos Bordado.</i> La Venta, México, 2010.
ACCIONA Energía. <i>Minuta de Reunión con Comisariado Ejidal de La Venta, Oaxaca.</i> La Venta, México, 2014.
EURUS, S.A.P.I. de C.V. <i>Plan de Manejo Social Integrado: Proyecto Eólico EURUS, México.</i>
ACCIONA Energía. <i>Responsabilidad Social Corporativa: Estudio de Línea de Base Social 2014.</i> La Venta, México, 2014.
ACCIONA Energía. <i>Estudio Etnográfico 2012.</i> La Venta, México, 2012.
ACCIONA Energía. <i>Reporte Fotográfico: Clausura de Taller de Corte y Confección y de Cocina.</i> La Venta, México, 2014.
ACCIONA Energía. <i>Convocatoria a Cursos en Línea del Centro Comunitario de Aprendizaje del TEC De Monterrey.</i>
ACCIONA Energía. <i>Responsabilidad Corporativa: "Unistmo" Prototipos, Fondos de Becas, Cursos Técnicos.</i> La Venta, Mexico, 2011.
ACCIONA Energía. <i>Evaluación de Riesgos: Parque Eólico en Construcción.</i> La Venta, México, 2012.
ACCIONA Energía. <i>Instrucción: Metodología para la Identificación y Evaluación de Riesgos Laborales.</i> La Venta, México, 2012.
ACCIONA Energía. <i>Procedimiento: Evaluación de Riesgos Laborales.</i> La Venta, México, 2012.
<i>Estudio de Ruido Metodología</i>
GEO Servicios. <i>Informe Técnico: Monitoreo de Aves Otoño 2010 en el Parque Eólico EURUS.</i> La Venta, Mexico, 2010.
EQUILIBRA. <i>Establece los Límites Máximos Permisibles de Emisión de Ruido de las Fuentes Fijas y su Método de Medición: EURUS, S. A. P. I. de C. V.</i> Naucalpan de Juárez, Estado de México, 2011.
EURUS, S. A. P. I. de C. V. <i>Plantas Carriles de Acceso Este.</i>
EURUS, S. A. P. I. de C. V. <i>Planta y Perfil Camino A, Corona 5 y 6 m.</i> La Venta, México, 2009.
EURUS, S. A. P. I. de C. V. <i>Planta y Perfil de Acceso Zona Oeste.</i> La Venta, México, 2008.
EURUS, S. A. P. I. de C. V. <i>Sección de Construcción Camino A, Corona 5 y 6 m.</i> La Venta, México, 2009.
Instituto Nacional de Antropología e Historia. <i>Vestigios.</i> Oaxaca, México, 2006.
EURUS, S. A. P. I. de C. V. <i>Informe de Construcción y Regeneración Ambiental de Áreas de Uso Temporal y Estrategia de Manejo de Parcelas Fraccionadas.</i> Oaxaca, México, 2012.
ACCIONA Energía. <i>Centro Comunitario Ecoeficiente La Venta.</i>
ACCIONA Energía. <i>Reporte Fotográfico: Presentación del Centro Comunitario Ecoeficiente.</i> La Venta, México, 2012.
ACCIONA Energía. <i>Reporte Fotográfico: Entrega de mejora de la Cancha de Fútbol Venados.</i> La Venta, México. 2013.
ACCIONA Energía. <i>Plan de Gestión Ambiental.</i>
ACCIONA Energía. <i>Código de Conducta.</i> Madrid, Spain, 2011.
ACCIONA Energía. <i>Política de Sostenibilidad.</i> Madrid, Spain, 2013.
EURUS, S.A.P.I. de C.V. <i>Informe Anual de Monitoreo Social y de Medio Ambiente, México: Proyecto Eólico EURUS.</i> La Venta, México. 2014.
EURUS, S.A.P.I. de C.V. <i>Plan de Vigilancia Ambiental, Fase de Obras.</i> La Venta, México. 2008.
ACCIONA Energía. <i>Procedimiento: Diseño de Parque Eólico.</i> La Venta, Mexico, 2012.
<i>Contrato de Usufructo Parcelario, 2007.</i>
"El Ejido" Comisariado Ejidal de La Venta, Juchitán, Oaxaca. <i>Contrato de Usufructo Parcelario.</i> La Venta, México, 2007.
ACCIONA Energía. <i>Procedimiento: Mantenimiento de Parques Eólicos</i> La Venta, México, 2012.
ACCIONA Energía. <i>Listado de Requisitos de Calidad, Seguridad y Medio Ambiente.</i> La Venta, México, 2012.
ACCIONA Energía. <i>Ejemplo Orden de Compra.</i> Oaxaca, México, 2014.
ACCIONA Energía. <i>Anexo: Política Corporativa.</i>
ACCIONA Energía. <i>Procedimiento Corporativo: Homologación y Evaluación de Proveedores.</i> 2013.

ACCIONA Energía. <i>Instrucción: Manejo y Disposición Final de Residuos</i> . Oaxaca, México.
<i>Disposición de Despalme</i> . La Venta, México, 2008.
UNFCCC. <i>Project Design Document Form (CDM PDD)</i> . 2009.
UNFCCC. <i>Monitoring Report Form (F-CDM-MR)</i> . Mexico, 2012.
UNFCCC/CCNUCC. <i>Monitoring Report</i> . La Venta, Mexico, 2012.
UNFCCC/CCNUCC. <i>Revised Monitoring Plan, Annex 4</i> . La Venta, Mexico.
EURUS, S. A. P. I. de C. V. <i>Manifestación de Impacto Ambiental (MIA)</i> . La Venta, México, 2006.
ACCIONA Energía. <i>Gestión Integral del Agua</i> . La Venta, México, 2013.
ACCIONA Energía. <i>As Built Layout</i> . La Venta, México, 2011.