



# **CERTIFICATION AND FINANCING PROPOSAL**

## **LA MESA WIND ENERGY PROJECT IN GÜÉMEZ, TAMAULIPAS**

*Revised: December 9, 2014*

## CERTIFICATION AND FINANCING PROPOSAL

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## EXECUTIVE SUMMARY

### LA MESA WIND ENERGY PROJECT IN GÜÉMEZ, TAMAULIPAS

The project consists of the design, construction and operation of 49.5-MW wind energy farm located in Güémez, Tamaulipas (the “Project”). The energy generated will be purchased by Grupo Soriana pursuant to a long-term power purchase agreement (PPA) executed with the special-purpose company created to carry out the Project.

The Project will increase installed capacity of renewable energy resources, which will reduce the demand on traditional fossil-fuel-based energy production and contribute to the displacement of greenhouse gas emissions and other pollutants from power generated by fossil fuels.

The estimated environmental and human health outcomes resulting from the installation of 49.5 MW of new renewable energy generation capacity are:

- a) Generation of approximately 181 GWh of electricity,<sup>1</sup> and
- b) An expected displacement of approximately 71,165 metric tons/year of carbon dioxide, 0.4 metric ton/year of sulfur dioxide, and 248 metric tons/year of nitrogen oxides.<sup>2</sup>

Grupo Energía México GEMEX, S.A. de C.V.

Compañía Eólica La Mesa, S.A. de C.V. (“La Mesa”).

The equivalent in Mexican pesos of up to US\$40 million.

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<sup>1</sup> The environmental impact is calculated based on P50 generation provided by the Sponsor.

<sup>2</sup> CO<sub>2</sub>, SO<sub>2</sub> and NO<sub>x</sub> calculations are based on emission displacement from wind energy generation equivalent to 181 GWh of energy produced by natural gas power generation, which is the predominant fuel source in Tamaulipas.

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### LA MESA WIND ENERGY PROJECT IN GÜÉMEZ, TAMAULIPAS

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#### **Project Type**

The Project falls into the category of clean and efficient energy.

#### **Project Location**

The Project is located in the municipality of Güémez, Tamaulipas, approximately 259 km (161 miles) south of the U.S.-Mexico border.

#### **Project Sponsor and Legal Authority**

The private-sector Sponsor is *Grupo Energía México GEMEX, S.A. de C.V.* (GEMEX or the "Sponsor"), which will use a special-purpose company named *Compañía Eólica La Mesa, S.A. de C.V.* ("La Mesa") to implement the Project. La Mesa is a Mexican-based company incorporated on October 3, 2011. Its contact representative is Álvaro Oliver Amatriaín.

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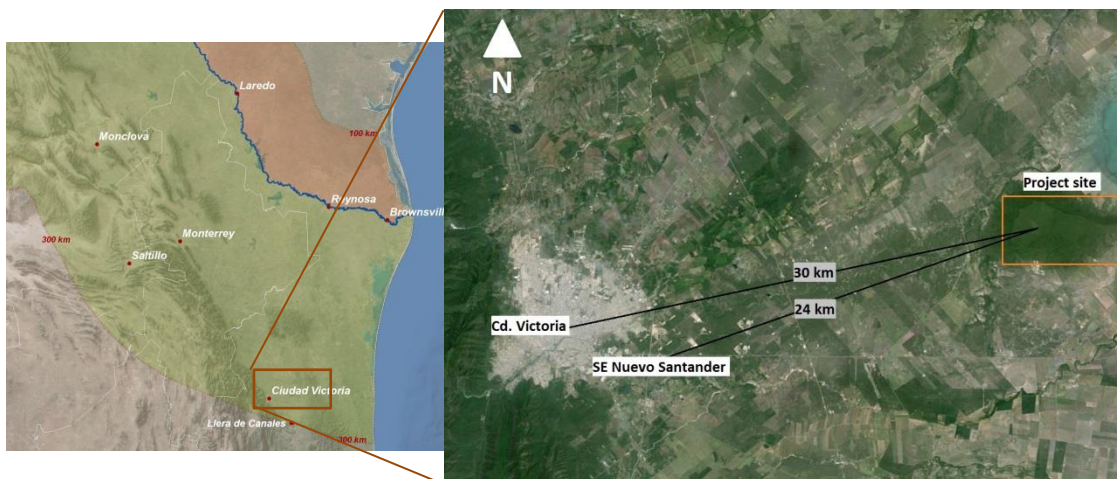
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### **2.1.1. Project Description**

#### **Geographic Location**

The Project site is located in the municipality of Güémez, 30 kilometers (18.6 miles) east of Ciudad Victoria, Tamaulipas and 24 kilometers (14.9 miles) northeast of the Nuevo Santander substation. The Project will be developed in an area of approximately 553 hectares (1,366 acres).

Figure 1 shows the approximate geographic location of the Project. The polygon represents the site for the construction of a more comprehensive wind energy facility to be implemented by the Project Sponsor. The proposed Project for certification will be constructed on the area known as "Mesa El Melón."



### **General Community Profile**

The Project is expected to benefit border communities in the state of Tamaulipas, such as Reynosa, Nuevo Laredo and Ciudad Victoria, that belong to the Northeast zone of the Mexican federal electricity commission, *Comisión Federal de Electricidad* (CFE).<sup>3</sup> Project benefits include the generation of electricity equivalent to the annual consumption of 25,313 households.<sup>4</sup> The construction of the Project will also benefit local communities by generating employment opportunities and additional taxes.

According to the Mexican 2010 census, the population of Tamaulipas was 3,268,554, which represents 2.9% of the total population of Mexico. Between the years 2000 and 2010, Tamaulipas experienced an average growth rate of 1.7% annually, similar to the national rate (1.8%).<sup>5</sup> According to the most current economic information from INEGI, the state of Tamaulipas contributed 3.02% to the gross domestic product (GDP) of Mexico in 2011. The main activities contributing to the state GDP are: manufacturing (16.2%), commerce (15.1%), real estate services (13.8%), transportation (9.2%), construction activities (9.1%) and oil mining (8.8%). The remaining 27.8% of the GDP is distributed among other productive sectors, including agriculture, financial services, educational services, textile fabrication, paper industry, food industry and professional services.

<sup>3</sup> Based on 2010 information from the Mexican national statistical institute, INEGI, BECC estimates more than 138,000 households are located within the 300-km border region of the state of Tamaulipas.

<sup>4</sup> Estimation based on 1,986.220 kWh of electricity consumption per capita in 2013 from Mexico's Energy Information System (<http://sie.energia.gob.mx/>) and 3.6 persons per household in the state of Tamaulipas as indicated by INEGI (<http://www3.inegi.org.mx/sistemas/mexicocifras/default.aspx?e=28>).

<sup>5</sup> Source: INEGI, 2010 general population and housing census (<http://www3.inegi.org.mx/>).

### **Local Energy Profile**

CFE is a power company created and owned by the Mexican Government. It generates and distributes electric power to more than 35 million accounts or nearly 100 million people. To manage its power supply, CFE operates an electric grid with more than 766,500 km of transmission and distribution lines.<sup>6</sup> During the past 12 years power generation has increased 3.2% annually, with power production totaling 278,086 gigawatt-hours (GWh) in 2012.<sup>7</sup>

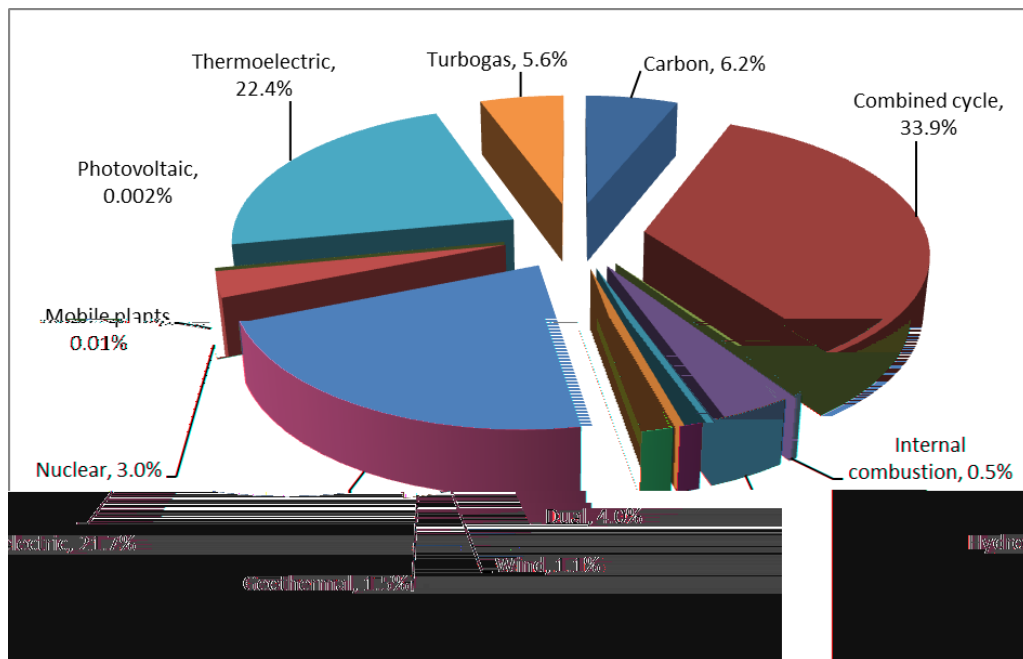
CFE generates electric power using various technologies and energy sources. To better support opportunities for increasing and diversifying the energy portfolio, in 1992, the Mexican Power Utility Law was amended to allow for the participation of private capital in energy generation activities under the following schemes: a) cogeneration or small power production, b) self-supply, c) independent power production, d) exports, and e) imports for self-consumption. Additionally, in 1995, the Energy Regulatory Commission (CRE) was created to regulate activities related to the participation of private investment in the power and natural gas (NG) sector. CRE is responsible for issuing permits to private entities for power generation and NG transportation. With the 2014 energy reform and new laws transforming the entire power industry in Mexico, these diversification efforts will be consolidated. The new electricity law also contains provisions to grandfather the regulations and permits which were granted or applied for by the Project.

According to the Power Sector Outlook for 2013-2027 (PSE) developed by the Mexican Ministry of Energy (SENER), installed capacity for electricity service in 2012 was approximately 53,114 MW, which represents an increase of 1.14% compared to 2011 (52,512 MW). Mexico's energy portfolio includes thermoelectric, geothermal, hydroelectric, coal-fired, solar photovoltaic, wind and nuclear power plants. The PSE contemplates an Expansion and Decommissioning Program, which would entail adding 46,915 MW of capacity to the existing system over the next 15 years to achieve a gross capacity of 88,200 MW by 2027. Figure 2 shows the technologies used for electricity generation in Mexico.

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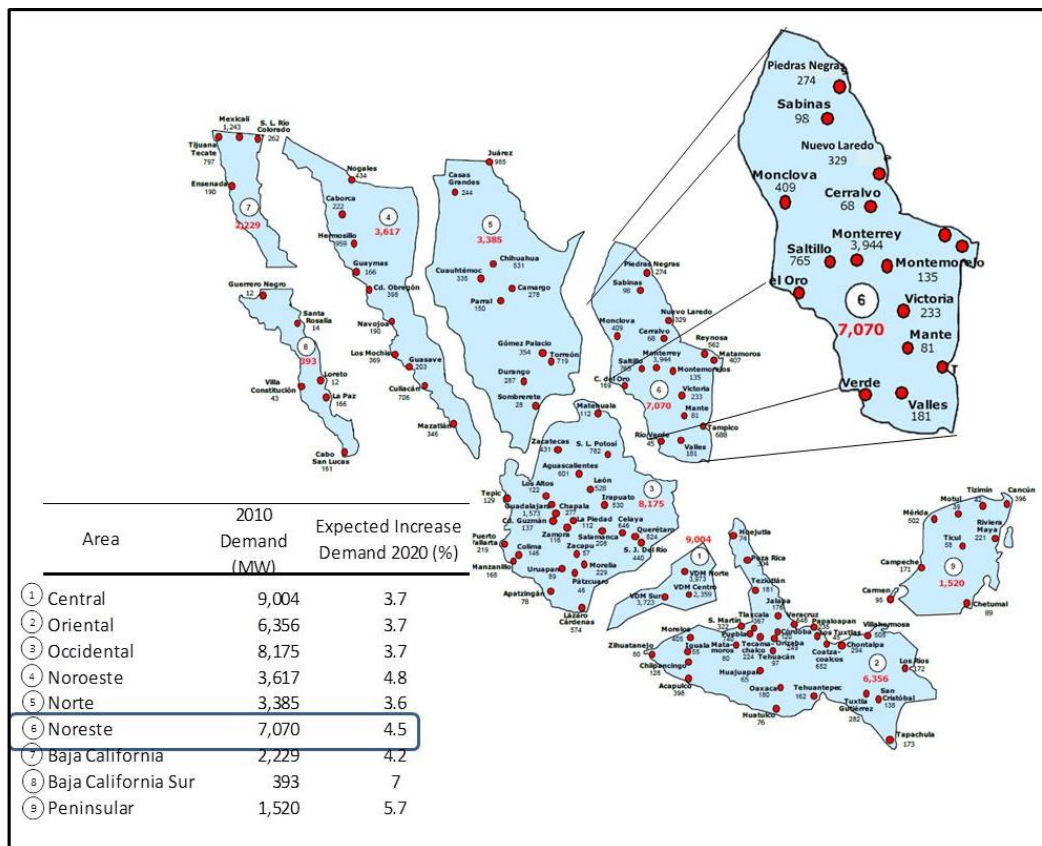
<sup>6</sup> Source: CFE's Capital Improvement Program for the Energy Sector for 2012-2026 (POISE).

<sup>7</sup> Source: SENER, Electric Sector Outlook for 2013-2027.



Source: Power Sector Outlook for 2013-2027.

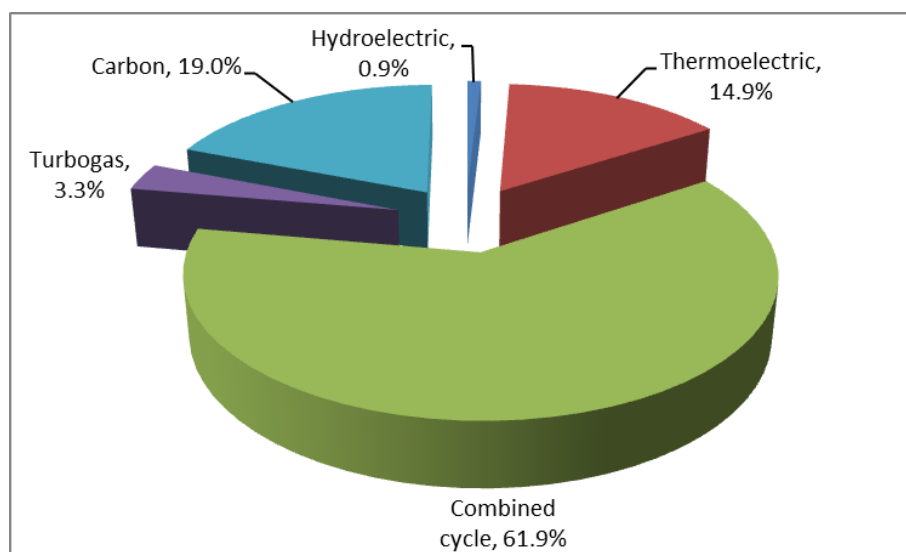
The Mexican power grid is divided into nine zones, seven of which are interconnected and form the National Interconnected System (SIN). The remaining two zones are independent supply networks serving the areas of Baja California and Baja California Sur. The Project will be located in the northeast zone (NEZ), which includes the states of Tamaulipas, Nuevo León, a large part of Coahuila and some municipalities from San Luis Potosí, as illustrated in area 6 in the following figure.



Source: CFE's Power Sector Capital Improvement Program for 2012-2026.

According to the Power Sector Capital Improvement Program for 2012-2026 (POISE), the generation capacity of the northeast zone was 7,587 MW in 2011, and during the previous five years energy demand in the zone experienced an average annual growth rate of 4.9%. The POISE also indicates that the energy produced in the NEZ is mainly consumed in the Monterrey metropolitan area, which recorded maximum demand of 3,813 MW in August 2011. The Reynosa area has also experienced a significant increase in demand. To better manage the energy needs of the zone as a whole and provide more flexibility, the power grids from the Nuevo Laredo, Matamoros and Monterrey areas are all interconnected. Figure 4 shows the distribution of the energy technologies in the northeast zone.





Source: Power Sector Outlook for 2013-2027.

To promote the use of renewable energy, the Mexican federal government has enacted two laws over the past six years. In 2008, Mexico enacted the Law for Renewable Energy Use and Energy Transition Financing (LAERFTE). In 2012, the General Law of Climate Change was enacted. Both laws specify, among other provisions, that SENER, in coordination with CFE and CRE, must be responsible for increasing the use of clean technologies in power generation to at least 35% by 2024. In 2014, under the new Power Industry Law, minimum requirements for purchasing clean energy will be set and a clean energy certificates market will be created. Power market participants will buy certificates tied to their total electricity consumption. SENER will implement a mechanism for trading the certificates and promote clean energy projects.

CFE has undertaken efforts to increase the use of non-fossil fuel technologies in power generation. In 1994, CFE began operating its first wind farm with a capacity of 1.6 MW in La Venta, Oaxaca, and in January 2007, the La Venta II wind farm with a capacity of 83 MW started operations in the same area. During the period of 2012-2027, CFE is considering increasing the use of renewable energy by 2,892 MW, including wind, solar and hydroelectric resources. CRE received letters of intent to develop 1,212 MW of wind energy projects in Tamaulipas during the open project application process in that state.<sup>8</sup> The private sector supports renewable energy development through wind energy projects, such as Ventika (252 MW) in Nuevo León, Energía Sierra Juárez (155.1 MW) in Baja California and El Porvenir (54 MW) in Tamaulipas.

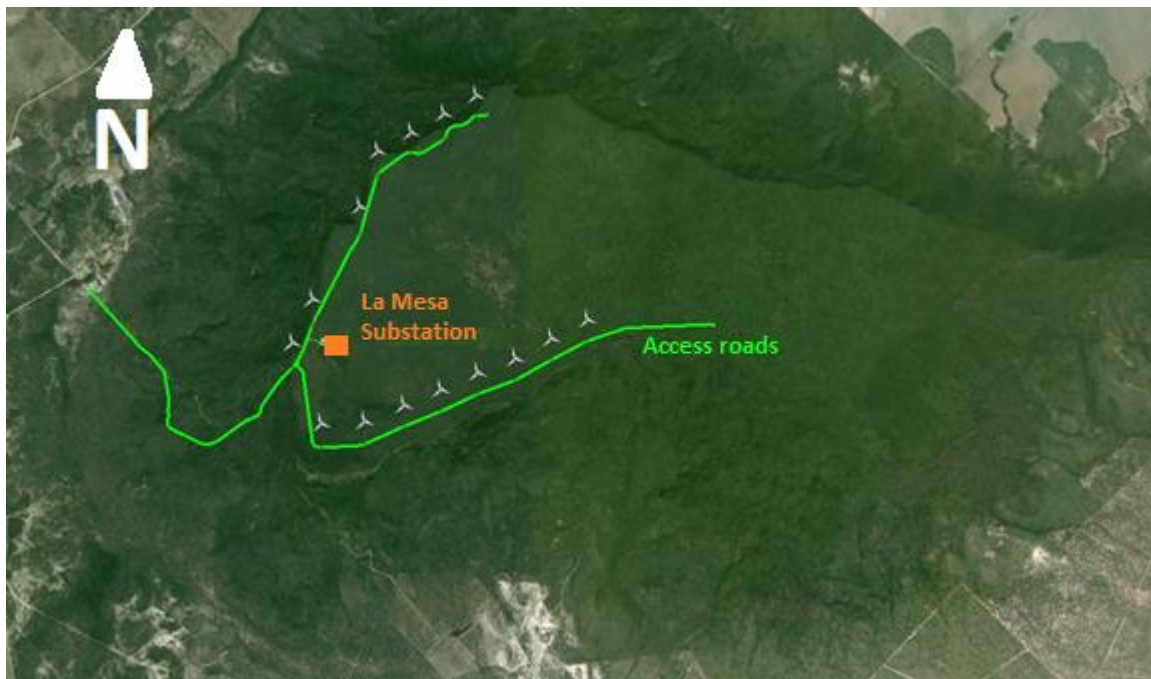
At the state level, the Tamaulipas Development Plan for 2011-2016 contains 16 objectives for supporting areas of strategic development in Tamaulipas. The environmental objectives include

<sup>8</sup> Source: CFE's strategies under the Power Sector Capital Improvement Program for 2012-2026.

the development of clean energy alternatives, such as renewable energy projects for residential and industrial consumption.

**Project Scope and Design**

The scope of the Project is to design, build and operate a wind farm with a capacity of 49.5 MW.<sup>9</sup> The Project will be developed on Mesa El Melón, occupying an area of approximately 553 hectares (1,366 acres). Figure 5 shows the Project site.



The Project components include the installation of wind turbines, one substation and a transmission line. The energy generated by each wind turbine will be conveyed to the substation through 34.5 kV underground lines. The Project will be interconnected to CFE's Nuevo Santander substation through a 115 kV overhead transmission line extending 25.3 kilometers (15.7 miles).

Construction of the Project is scheduled to start in March 2015, and the Commercial Operation Date (COD) will be no later than June 2016.<sup>10</sup> Table 1 presents the status of key tasks for the implementation of the Project.

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<sup>9</sup> The Project is part of a larger project to be developed on Mesa El Melón.

<sup>10</sup> Information provided by the Sponsor.

Land lease agreement for the Project	Completed (September 2012)
Land lease agreement for the transmission line	Completed (August 2014)
Authorization to install wind turbines issued by the Ministry of Communications and Transportation (SCT)	Completed (December 2013)
CRE authorization for energy generation	Completed (November 2012)
CFE Interconnection Agreement	In progress
SEMARNAT environmental authorization (MIA resolution) and subsequent term extension*	Completed (October 2010 and January 2014)
SEMARNAT environmental authorization for the Project (MIA resolution)*	Completed (December 2014)
Land use change authorization issued by SEMARNAT	In progress
SCT rights of way issuance	In progress
Engineering, procurement, and construction (EPC) agreement	In progress
Power purchase agreement	Completed (April 2013)
Independent engineering final report	In progress
Commercial operation date	June 2016

\*The original MIA Resolution covers the comprehensive wind energy facility that includes the proposed Project, as further described in section 2.2.1, below. Subsequently, the Sponsor submitted a specific MIA for the Project, including the related transmission line.

NADB's procurement policies require that private-sector borrowers use appropriate procurement methods to ensure a sound selection of goods, works and services at fair market prices and that their capital investments are made in a cost-effective manner. As part of its due-diligence process, NADB will review compliance with this policy.

## 2.1.2. Technical Feasibility

### Selected Technology

Current technologies allow for more efficient and reliable power generation, as well as greater production at average wind speeds, in part due to an increase in blade size and improved blade designs. The Sponsor evaluated three different types of wind turbine models from various suppliers and selected the equipment best suited to the characteristics of the Project site in order to obtain the best performance (long-term energy output) based on the wind resources. The process for technology evaluation considered elements such as profitability, contract terms, warranties and delivery times.

The main components of the Project include:

- Wind Turbines. Installation of 15 wind turbines, each with 3.3 MW of nominal power. The steel towers will have a hub height of 84 meters (275.6 ft.). Wind turbine transformers will step up the voltage generated to 34.5 kV for transmission through an insulated underground cable to the Project substation.

- Foundations. Reinforced concrete will be used to build the foundations with 18 meter diameters. They will be sized to withstand the stresses produced by forces acting on the towers. Foundations also include piping for ground, medium voltage and optic fiber cables.
- Electrical substation and transmission line. One substation will be constructed to collect the 34.5 kV energy produced by the turbines through underground lines. The collecting substation will step up the energy to 115 kV, which will be delivered to the interconnection point at the CFE Nuevo Santander substation through an overhead transmission line stretching 25.3 kilometers (15.7 miles). A 10 km of the transmission line will be constructed on private land; the remainder will be constructed on the right of way of Federal Highway 70.
- Monitoring and control system. Through the SCADA system the operation of each turbine, as well as the Project as a whole, can be controlled and monitored from a central computer or a remote PC. In case of problems, the SCADA system will alert the operations staff. The control system will always be in operation to ensure that the machines are running in an efficient and safe manner. Additionally, the system will be able to monitor and record atmospheric measurements from multiple meteorological towers.
- Roads. Approximately 2.6 km (1.6 miles) of roads will be rehabilitated to allow access to the top of the plateau. Approximately 10.4 km (6.5 miles) of roads will be constructed to allow access to the site. The roads will be 5 meters (16 ft.) wide and will be constructed using different gravel grain sizes. Water will be sprayed to control dust emissions when required.
- Operation and maintenance facilities. One O&M facility will be built. It will include a permanent administrative, maintenance and storage building for equipment during construction and operation.
- Meteorological towers. Five permanent towers are already installed at the site for wind monitoring and evaluation of potential energy generation. The data collected is being analyzed and correlated to estimate power generation.

### **Wind Resource Assessment**

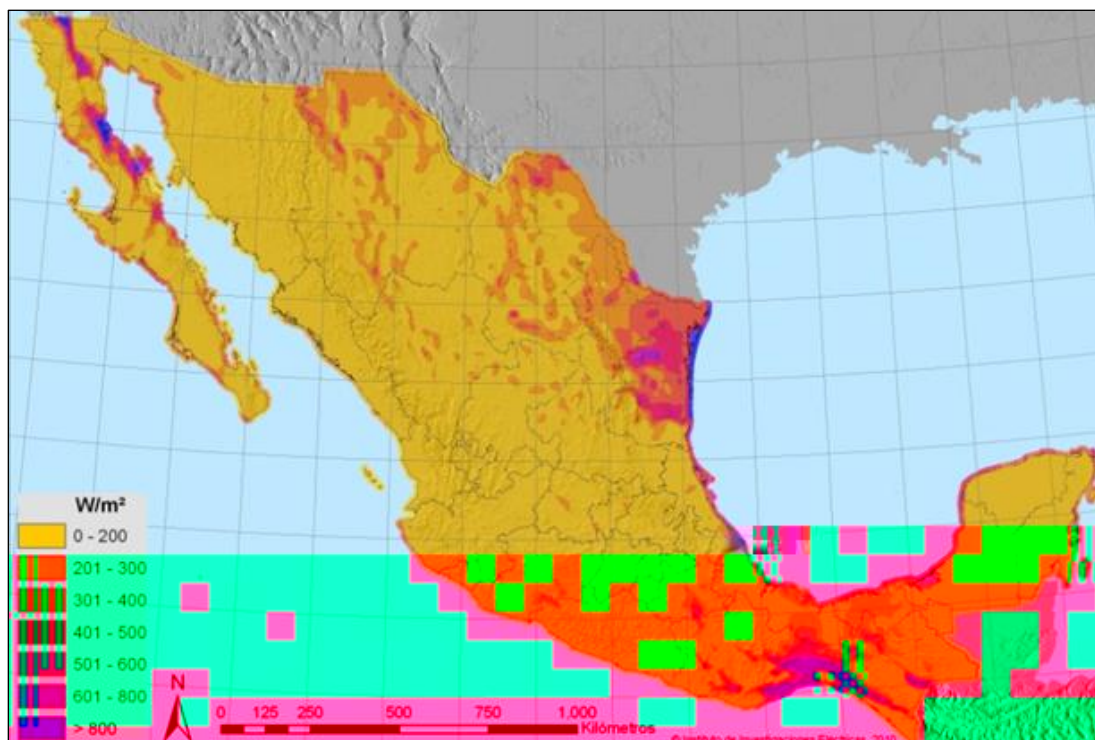
The Project is located in the state of Tamaulipas, where mid-level wind power density has been reported. According to the Mexican power research institute (IIE), wind resources in the state range from 301 to 500 W/m<sup>2</sup> (see Figure 6).<sup>11</sup>

In order to assess the wind resources available in the Project area, in November 2008, a meteorological tower was installed in the Project site to collect data, such as the wind speed, wind direction and temperature at different heights. In October 2012, an 80-meter (262.5-foot)

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<sup>11</sup> Source: Mexican electrical research institute, *Instituto de Investigaciones Eléctricas* (IIE), [www.iie.org.mx/](http://www.iie.org.mx/).

tower was installed to provide greater accuracy in the wind data already collected. In February 2014, three additional towers, 84 meters (275.6 ft.) high were installed to correlate data and reduce uncertainties. Available data from the towers were compiled, validated, and incorporated into the wind resource analysis. Based on the preliminary results, it is estimated that the Project will generate an average of 181 GWh of electricity based on P50 generation.<sup>12</sup> The results are being vetted for accuracy and related risks by an independent engineer.



Source: Mexican Power Research Institute.

### 2.1.3 Land Acquisition and Right-of-way Requirements

The Project site is located in an area where farming and raising livestock are the main activities. The Sponsor has secured the land and rights of way for the Project through leasing agreements signed in September 2012. A portion of the Project's new transmission line will run through private land, for which a leasing agreement was signed in September 2012. Documentation related to lease agreements with private entities has been provided for the Project.

Additional rights of way (approximately 15 km) from the Mexican Ministry of Communications and Transportation (SCT) are required for the construction of the transmission line. The Sponsor

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<sup>12</sup> Source: Sponsor.

is completing the final design for the infrastructure and will submit an application for the permit as soon as the design is available. The Sponsor has consulted with SCT in preparation for the request and has not received anticipated concerns from the entity. The rights of way are expected to be obtained by February 2015.

The Project will also require a Land Use Change authorization from the Ministry of Environment and Natural Resources (SEMARNAT) for construction, which is expected by January 2015.

These permits will be obtained prior to or during the construction process. Loan disbursement will require the appropriate completion of the permits based on the advancement of a specific construction task.

#### **2.1.4. Management and Operations**

Grupo Energía México, S.A. de C.V. has experience in developing and operating wind projects in Mexico, including the 54-MW El Porvenir project in Tamaulipas, partially finance by NADB and in operation since March 2014. GEMEX's current plans include the construction of 99 MW in 2014 and 118 MW in 2015. An additional 400 MW are currently being considered during the open application cycle.<sup>13</sup> All of these projects are located in the state of Tamaulipas.

The proposed Project will be designed to operate with minimal human intervention. Operation and maintenance tasks will be performed to optimize the operating times of the turbines, reduce repair costs, and extend the life of the equipment. The Sponsor will execute a Service and Maintenance Agreement (SMA) with the turbine manufacturer. The SMA will specify the tasks to be performed for all turbines and balance of plant operations and maintenance during the term of the agreement. The scope of the SMA will include such services as industry standard O&M management tasks, reporting, remote monitoring and resets, and maintaining logs and records.

#### **2.2.1. Compliance with Applicable Environmental Laws and Regulations**

##### **Applicable Laws and Regulations**

Below is a list of the general laws and regulations applicable to the Project, according to the Environmental Impact Assessment (MIA) submitted by the Sponsor on July 16, 2014.

- General Law of Ecological Balance and Environmental Protection (LGEEPA), which establishes the environmental regulatory framework, expands the strategic vision, and conveys specific powers and duties to the states and municipalities, so that the environmental problems of each can be addressed directly.

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<sup>13</sup> Time-bound procedure by which expansion or modification of the transmission infrastructure of the national grid is agreed and scheduled.

- General Law for Comprehensive Waste Management and Prevention (LGPGIRS), which seeks to identify the criteria that should be considered by various levels of government in the generation and comprehensive management of solid waste, in order to prevent and control environmental pollution and ensure the protection of human health.
- General Wildlife Law, which establishes the concurrence of the federal, state and local governments regarding the conservation and sustainable use of wildlife and their habitats in Mexico.
- General Law for Sustainable Forest Development (LGDFS), which regulates and promotes the conservation, protection, restoration, production, zoning, cultivation, management and use of the country's forest ecosystems and their resources.
- NOM-081-SEMARNAT-1994, which establishes the maximum levels of noise from stationary sources and noise measuring methods.
- NOM-059-SEMARNAT-2010, which identifies endangered species or clusters of wildlife in Mexico by preparing the corresponding lists and establishing the criteria for inclusion, exclusion or change in risk status for different species, using a method for assessing the risk of extinction.

#### **Environmental Studies and Compliance Activities**

The Project is subject to federal environmental clearance authorizations in Mexico. For the construction of the Project and its transmission line, the Sponsor developed a MIA as required by SEMARNAT. The MIA identifies, describes and evaluates the potential environmental effects associated with the proposed action and alternatives. The evaluated elements include flora and fauna, as well as visual and sociocultural aspects and the migratory routes of birds, bats and monarch butterflies.

The MIA submitted by the Sponsor covered a comprehensive wind project, in which the proposed Project was part of a larger set of facilities. After a thorough analysis of potential impacts, the MIA concluded that the execution of the project would not significantly affect the environment. In October 2010, SEMARNAT issued MIA Resolution No. SGPA/03-2166/10, authorizing the development of the project, including the facilities described herein. In October 2013, the Sponsor requested a term extension of the original MIA Resolution to develop the proposed Project. The Sponsor also complied with an inspection visit as required by the Federal Attorney for Environmental Protection (PROFEPA). The purpose of the inspection visit was to verify compliance with terms and conditions of the MIA Resolution and the MIA itself. The Sponsor provided supporting documents as requested by PROFEPA.

In January 2014, SEMARNAT authorized the extension request by granting an additional three years for development of the Project, as described in Official Letter No. SGPARN/03-144/14. The original project was reviewed and modified to optimize its design and electricity generation. In March 2014, the Sponsor informed SEMARNAT about the modifications to the Project and received development approval, as indicated in the Official Letter No. SGPARN/03-763/14.

As part of the MIA, the Sponsor conducted a Bird and Insects Monitoring Study from May 2011 to April 2012. The purpose of the study was to identify special status species, migratory birds

and butterflies occurring within the Project site. A low presence of 10 migratory bird species was detected, as well as a low quantity of one special status specie (Harris hawk - *Parabuteo unicinctus*) protected under NOM-059-SEMARNAT-2010. No monarch butterflies were detected. In July 2012, SEMARNAT acknowledged the final report in Official Letter No. SGPA/03-1706/12.

Additionally, in March 2011, the Sponsor developed and submitted a Noise Program to SEMARNAT for its formal acceptance. The purpose of the Program is to develop actions for mitigating noise impacts.

The Sponsor and SEMARNAT held meetings during which the Sponsor was informed that a separate MIA for the Project was required. The separate MIA was submitted on July 16, 2014, and the resolution was obtained in December 2014. According to the MIA, no significant impacts are anticipated as a result of implementation of this Project. The Project will be subject to the conditions of the new MIA resolution rather than the original resolution. However, studies already conducted, such as the Bird and Insects Monitoring Study and the Noise Study Program, will be presented before the environmental authorities, as required by law.

#### **Pending Environmental Tasks and Authorizations**

There are no environmental authorizations pending.

#### **Compliance Documentation**

MIA Resolution No. SGPARN/03-2337/14 for the La Mesa Project was issued by the SEMARNAT Delegation in Tamaulipas.

### **2.2.2. Environmental Effects / Impacts**

There is a need for affordable and environmentally beneficial alternatives to conventional hydrocarbon-based energy sources. Renewable energy projects create an opportunity to generate electricity without the atmospheric emissions generated by fossil-fuel-based plants. Wind is a renewable energy source, which means that it can be used continuously without depleting natural resources. Wind is a clean form of renewable energy and is currently used in many developed and developing nations to meet their demand for electricity. Wind energy does not produce waste byproducts that require disposal, nor gas emissions that contribute to air pollution. It does not consume or pollute water. The Project does not anticipate the use of water for cooling the turbines during normal operations. The Project provides an opportunity to displace greenhouse gases (GHG) and other pollutants produced by traditional hydrocarbon-based energy generation, while providing local residents with a safe and reliable energy alternative.

#### **Existing Conditions and Project Impact – Environment**

Historically, Mexico has depended to a great extent on fossil fuels for the generation of energy. This conventional method of energy development can affect the natural environment due to harmful emissions related to the generation process, including GHG and other pollutants, such as sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>).



The Project will help reduce the demand for electricity generated by fossil fuel-based power plants, and since wind-based power generation implies zero fuel costs and emissions, it will displace related harmful emissions. The anticipated environmental outcomes from the installation of 49.5 MW of new renewable energy generation capacity (or approximately 181 GWh) are the displacement of 71,165 metric tons/year of carbon dioxide, 0.4 metric ton/year of sulfur dioxide, and 248 metric tons/year of nitrogen oxides.<sup>14</sup>

#### Mitigation of Risks

Some environmental impacts are anticipated from the implementation of the Project. The Sponsor has proposed mitigation measures that are intended to reduce, mitigate and control the environmental effects resulting from Project development activities. To ensure that mitigation measures are implemented properly and in a timely manner, the Sponsor has also developed an Environmental Monitoring Program, as described in the Project MIA. Additionally, the Sponsor will implement the mitigation measures described in the MIA Resolution. Mitigation measures include:

- Flora
  - In order to avoid additional flora removal, the Sponsor will keep ground-disturbing activities within the area designated to the development of the Project.
  - Habitats in affected areas will be restored.
  - The Sponsor will develop a Flora Management Program.
  - The Sponsor will develop a Restoration Program oriented to restoring native vegetation during the decommissioning of the Project.
  - In accordance with NOM-059-SEMARNAT-2010, the acquisition, alienation, donation, sale, distribution, transportation, hunting, gathering, trapping and/or trafficking of protected flora will be prohibited.
- Fauna
  - Native fauna will be relocated.
  - Vehicles will be driven at a maximum speed of 30 km/h to avoid running over ground fauna.
  - Wind turbines will be installed no less than 200 meters apart to avoid collisions.
  - Promote restoration of previously disturbed areas with native species for transit of fauna species present in the site.
  - Environmental compensation will be made, which generally refers to a series of activities such as a payment to the Mexican Forest Fund, for the conservation and restoration of other areas that can compensate for the occupation associated with the Project.

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<sup>14</sup> CO<sub>2</sub>, SO<sub>2</sub> and NO<sub>x</sub> calculations are based on emission displacement from wind energy generation equivalent to 181 GWh of energy produced by natural gas power generation, which is the predominant fuel source in Tamaulipas.

- In accordance with NOM-059-SEMARNAT-2010, the acquisition, alienation, donation, sale, distribution, transportation, hunting, gathering, trapping and/or trafficking of protected fauna will be prohibited.
- Noise: Wind turbines will be installed at least 300 meters away from populated areas.
- Solid Waste
  - Develop an Oil Management Plan and a system for oil recovering as a precautionary measure in the event of accidental oil spills.
  - Develop a Solid Waste Monitoring Program prior to starting construction activities.
  - Organic and construction waste shall be deposited in properly labeled containers and will be disposed of in authorized sites in accordance with applicable laws.
- Soil: Implementation of a Soil Management Program to minimize potential erosion.

#### Natural Resource Conservation

The Project will support natural resource conservation by reducing the demand on fossil fuels for energy production and contributing to improvements in air quality. The Project is anticipated to produce approximately 181 GWh of zero-carbon electricity per year, equivalent to the annual energy consumption of 25,313 households. In addition, clean technologies such as wind energy require no water for electricity production, whereas fossil-fuel-fired generation is typically water intensive. Water to be used during the construction phase, will be transported by water tanks to the Project's site.

#### No Action Alternative

The "no action" alternative to the development of renewable energy sources would result in greater demand for conventional fossil-fuel-based energy production, further depleting natural resources for the purpose of meeting an ever-growing demand for energy, as well as a lost opportunity to generate emission-free energy, such as that derived from wind sources. Additionally, the Project will help meet the goals established under the Mexican Law for Renewable Energy Use and Energy Transition Financing (LAERFTE) and comply with emissions regulations, while satisfying increased demand for electricity. Should the Project not be implemented, the mix of renewables in Mexico will be delayed.

#### Existing Conditions and Project Impact – Health

Epidemiological research has shown that both chronic and acute exposure to harmful emissions associated with fossil fuel-based energy production can lead to serious respiratory problems. It is estimated that, at the very least, prolonged exposure to excessive levels of pollutants can deteriorate the respiratory capacity of human beings and greatly contribute to the increased incidence of cardiopulmonary diseases, such as asthma, heart ailments, and lung cancer.

By using clean renewable resources instead of conventional fossil fuel sources in power generation, the Project will positively impact the region by reducing pollutants and thus help to

contain the severity of respiratory problems and other diseases aggravated or caused by air pollution. In addition, the reduction of GHG emissions is expected to mitigate climate effects that create more vulnerable conditions for human health.

### **Transboundary Effects**

No negative transboundary impacts are anticipated as a result of the development of the wind energy project; on the contrary, a beneficial effect is anticipated on air quality due to the decreased demand on fossil-fuel-fired electrical plants in the region. Furthermore, the Project will aid in addressing the larger environmental concerns related to greenhouse gases and global warming targeted by international agendas.

### **Other Local Benefits**

The Project will promote the social and economic development of the municipality of Güémez in the state of Tamaulipas. During construction, the Project is expected to generate more than 250 direct jobs, while seven permanent jobs are expected to be created during operation. Employment of construction personnel will provide a temporary beneficial impact on local businesses and the regional economy through increased expenditure of wages for goods and services. Personnel for construction would be drawn from local populations to the extent feasible.

The communities of Güémez and Ciudad Victoria will also benefit from the construction of the Project for educational purposes. Local schools will be able to visit the facility to receive information and presentations about wind energy, technologies used for the Project, environmental and socioeconomic benefits.

The Project Sponsor has requested a loan from the North American Development Bank (NADB) to complete the financing of the Project. The proposed payment mechanism is consistent with the project structure normally seen in the renewable energy industry. The source of payment will be the revenue generated by the Project in accordance with the pricing established under the PPA that has been signed by the Project Company. NADB loan will have no recourse beyond the Project Company, Compañía Eólica La Mesa.

The Project's revenue from the sale of electricity is estimated to be sufficient to: a) cover scheduled O&M expenses, b) fund any debt service reserve, c) pay the debt service on the senior loans, and d) comply with debt service coverage requirements.

In addition, NADB's analysis verified that Compañía Eólica La Mesa has the legal authority to contract financing and pledge their revenue for the payment of financial obligations. Compañía Eólica La Mesa has also the legal and financial capacity to operate and maintain the Project based on the experience provided by their development team. Compañía Eólica La Mesa will contract the Project O&M services with a firm with ample experience and expertise in the industry. NADB will verify that the projected O&M costs and contract warranties are in accordance with industry standards.

Considering the Project's characteristics and based on the financial and risk analyses performed, the proposed Project is considered to be financially feasible and presents an acceptable level of risk. Therefore, NADB proposes providing a market-rate loan for the equivalent in pesos of up to \$40.0 million dollars to Compañía Eólica La Mesa for the construction of the project described herein.

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BECC released the Draft Project Certification and Financing Proposal for a 30-day public comment period beginning September 18, 2014. The following documentation is available upon request:

- MIA Resolution No. SGPA/03-2166/10 issued by the SEMARNAT Delegation in Tamaulipas.
- Term Extension of MIA Resolution No. SGPARN/03-144/14 issued by the SEMARNAT Delegation in Tamaulipas.
- MIA Resolution No. SGPARN/03-2337/14 for the La Mesa Project issued by the SEMARNAT Delegation in Tamaulipas.

The public comment period ended on October 18, 2014, with no comments received.

Since 2008, as part of the outreach activities for the Project, the Sponsor has held several meetings with private landowners, as well as Ejido La Mesa and Ejido San Andrés authorities, to present the benefits of the proposed Project to the community. In September 2012, the representatives of Ejido San Andrés and Ejido La Mesa voted in favor of the Project in order to sign leasing agreements with the Sponsor for the construction and operation of the Project.

The presentation of the Project, permitting process and approvals also required the Sponsor to hold meetings with government agencies, such as the Department of Civil Aviation (DGCA), to officially present the modifications to the Project and request approval of the final location of wind turbines, which was issued in December 2013.

The Sponsor met with the National Institute of Anthropology and History (INAH) to present the scope of the Project and determine which permits were required prior to initiating land clearing activities. Meetings with the municipality of Güémez were also held to discuss the Project and local government's requirements.

BECC conducted a media search to identify potential public opinion about the Project. References to the Project were found on several Internet sites, such as *Al Momento*, *Milenio*, *Conexión Total*, *Tamaulipas government website*, *Hora Cero* and *El Diario*. Some of the

information highlights the interest of investors to develop 13 wind projects, including Victoria, in Tamaulipas with an installed capacity of 2,566 MW. Examples of these articles can be found at the following links:

- *Al Momento* (January 13, 2014), “*Construirán en Tamaulipas tres parques eólicos*” (Three wind farms to be constructed in Tamaulipas)  
<http://www.almomento.mx/construiran-en-tamaulipas-tres-parques-eolicos/>
- *Conexión total* (January 15, 2014), “*Producirán energía ‘limpia’ en Victoria*” (‘Clean’ energy to be produced in Victoria)  
<http://conexiontotal.mx/2014/01/15/produciran-energia-limpia-en-victoria/>
- *Tamaulipas government website* (March 2, 2014), “*Arrancan tres proyectos más de energía eólica*” (Construction begins on three more projects)  
<http://tamaulipas.gob.mx/2014/03/arrancan-tres-proyectos-mas-de-energia-eolica/>
- *Milenio* (March 2, 2014), “*Contemplan construcción de tres parques eólicos*” (Construction of three wind farms planned)  
[http://www.milenio.com/region/construccion-parque\\_eolico-tamaulipas\\_0\\_226177834.html](http://www.milenio.com/region/construccion-parque_eolico-tamaulipas_0_226177834.html)
- *Hora Cero* (March 3, 2014), “*Tiene Tamaulipas 27 proyectos de parques eólicos*” (Tamaulipas has 27 wind farm projects)  
<http://www.horacero.com.mx/noticia/?id=NHCVL125213>
- *El Diario* (July 23, 2014) – Public announcement of the La Mesa Project.

The articles identified for the Project reflected support from the State Government, as well as from private investors. Opposition to the Project was not detected from the available media coverage. The Project Sponsor has followed all public consultation requirements in order to comply with applicable environmental clearance and permitting processes.