



# **CERTIFICATION AND FINANCING PROPOSAL**

# VICENTE GUERRERO WIND ENERGY PROJECT IN GÜÉMEZ, TAMAULIPAS

Submitted: October 28, 2016

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# **EXECUTIVE SUMMARY**

### VICENTE GUERRERO WIND ENERGY PROJECT IN GÜÉMEZ, TAMAULIPAS

The project consists of the design, construction and operation of a 117.3 MW wind energy farm located in Güémez, Tamaulipas (the "Project"). The energy generated will be purchased by a private off-taker

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#### <u>Project Type</u>

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

#### Project Location

The Project is located in the municipality of Güémez, Tamaulipas, approximately 265 km (164.7 miles) south of the U.S.-Mexico border.

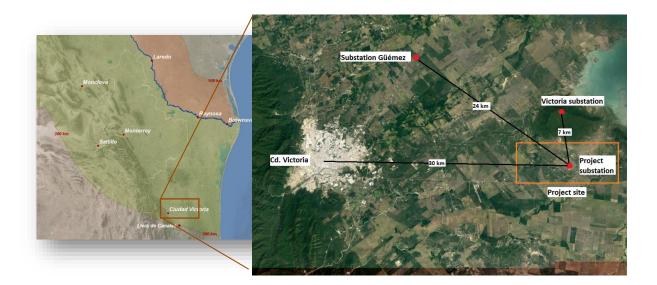
#### Project Sponsor and Legal Authority

The private-sector sponsor is *Grupo Energía México GEMEX, S.A. de C.V.* (GEMEX or the "Sponsor"), which on October 3, 2011, created a special-purpose company (SPV) called *Compañía Eólica Praxedis S.A. de C.V. (CEP)* to implement the Project. In 2016, the Sponsor changed the name of the SPV to *Compañía Eólica Vicente Guerrero, S.A. de C.V.* ("Vicente Guerrero"). Its contact representative is Álvaro Oliver Amatriaín.

#### 2.1.1. Project Description

#### **Geographic Location**

The Project is located in the municipality of Güémez, 18.6 miles east of Ciudad Victoria, Tamaulipas, 4.4 miles south of the Victoria substation, which is part of the Victoria wind energy project under construction by the Sponsor and 15.0 miles southeast of the Güémez substation operated by the Mexican federal electricity commission, *Comisión Federal de Electricidad* (CFE). The Project will be developed on approximately 10,527 hectares (26,012.78 acres) at the following coordinates: latitude: 23.737811°N and longitude: 98.843059°W. Figure 1 shows the approximate geographic location of the Project.



#### **General Community Profile**

The Project is expected to benefit border communities in the state of Tamaulipas, such as Ciudad Victoria, that belong to the CFE Northeast Zone.<sup>3</sup> Project benefits include the generation of electricity equivalent to the annual consumption of 62,302 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 2014 Economic Census,<sup>6</sup> the state of Tamaulipas accounted for 3.0% of the gross domestic product (GDP) in 2013. The main activities contributing to the state's GDP are: manufacturing (64.4%), commerce (10.0%), non-financial private services (8.7%) and other sectors (16.8%).

According to the Mexican 2010 census, the population of the municipality of Victoria was 346,029, which represents 10.6% of the total population of the state of Tamaulipas. According to 2014 Economic Census, the municipality of Victoria contributed 4.3% to the state's GDP in 2013. The main activities contributing to the municipality's GDP are: manufacturing (25.2%),

<sup>4</sup> Estimation based on 2,015.28 kilowatt-hours (kWh) of electricity consumption per capita in 2014 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>&</sup>lt;sup>3</sup> Based on 2010 information from the National Institute of Statistics and Geography (INEGI), BECC estimates more than 138,000 households are located within the 300-km border region of the state of Tamaulipas.

<sup>&</sup>lt;sup>5</sup> Source: INEGI, 2010 General Population and Housing Census (http://www3.inegi.org.mx/).

<sup>&</sup>lt;sup>6</sup> Source: INEGI, Economic Census 2014 (http://www.inegi.org.mx/est/contenidos/proyectos/ce/ce2014/).

retail trade (20.1%) wholesale trade (12.6%), transport and storage services (11.7%) and other sectors (30.4%).

#### Local Energy Profile

In 2014, the legal framework of Mexico's National Power System underwent a major reform aimed at facilitating investments to consolidate diversification efforts, improve infrastructure and meet the growing demand for electricity. Under the new Electricity Industry Law, the federal government retains control of planning activities and the transmission and distribution infrastructure through the National Center of Energy Control (CENACE), a decentralized federal agency created by the government to operate the SEN and now charged with operating an electric grid with more than 546,615 miles of transmission and distribution lines previously operated by CFE, which has become a state-owned enterprise.<sup>7</sup> The Energy Regulatory Commission (CRE), which was created to regulate activities related to the participation of private investment in the power and natural gas sector, continues to be responsible for issuing permits to private entities for power generation and the transportation of natural gas.

The new law contains provisions to grandfather project applications submitted to CRE under the now abolished public sector power law (*Ley del Servicio Público de Energía Eléctrica*) for self-supply, cogeneration, independent power production, small power producers, imports and exports, which also applies to renewable energy projects. According to these provisions, interested parties may establish a grandfathered interconnection contract for a term of up to 20 years by complying with the following conditions:

- a) If the interested entity has requested or obtained a permit for a generation project and has paid the corresponding fees.
- b) The interested party notified CRE of its intention to continue with the project within 60 days after the Law was enacted.
- c) The interested entity provides evidence to CRE, no later than December 31, 2016, that financing for the entire project has been secured, that the main equipment has been procured and that to date the investment in fixed assets of the project represents at least 30% of the total cost of the project.

Vicente Guerrero is a grandfathered project under the new law, as the Sponsor requested and obtained the power generation permit prior to enactment of the new law and notified CRE of its intention to continue with the Project within the established time limit.

In order to promote the use of renewable energy, the Mexican Government has enacted two laws in the past four years. In 2015, Mexico enacted the Energy Transition Law to regulate the sustainable use of energy and obligations regarding clean energy and the reduction of pollution from the power industry, while preserving the competitiveness of the productive sectors. The General Law of Climate Change was enacted in 2012 and amended in 2015. Both of these laws specify, among other provisions, that the Ministry of Energy (SENER), in coordination with CFE

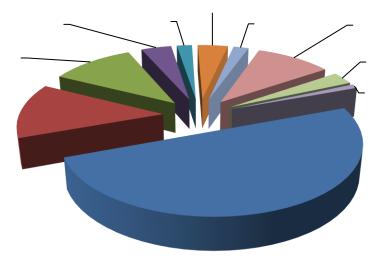
<sup>&</sup>lt;sup>7</sup> Source: SENER, 2015-2029 Power Sector Outlook.

and CRE, must increase the use of clean technologies in power generation to at least 35% by 2024.

Historically, 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 initiated operations in the same area. During the period 2012-2027, CFE plans to increase the use of renewable energy by 2,892 MW, including wind, solar and hydroelectric resources. Additionally, the private sector supports renewable energy development through wind energy projects, such as Ventika (252 MW) in Nuevo Leon and El Porvenir (54 MW) in Tamaulipas.

Mexico's energy portfolio includes combined-cycle, thermoelectric, geothermal, hydroelectric, coal-fired, solar photovoltaic, wind, turbogas, internal combustion, cogeneration and nuclear power plants. According to the National Power System Development Program for 2016-2030 (PRODESEN), in 2015, Mexico had 68,044 MW of installed generation capacity, which represents an increase of 4.0% compared to 2014 (65,452 MW). Total power generation reached 309,553 GWh, which represents an increase of 2.7% compared to the electricity generated in 2014.

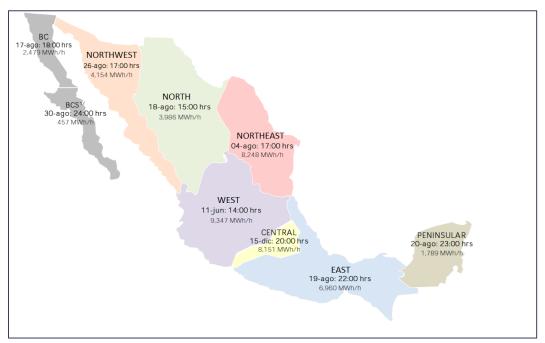
The power plants operated by CFE supplied 55.2% of the electricity generated, independent producers contributed 28.8% and private entities provided 16.0% through self-supply schemes, cogeneration, small production, export, distributed generation and rural systems. Figure 2 shows the breakdown of power generation by technology in Mexico.



Source: SENER, PRODESEN 2016-2030

For planning purposes, the Mexican power grid is divided into nine control 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 the following figure.

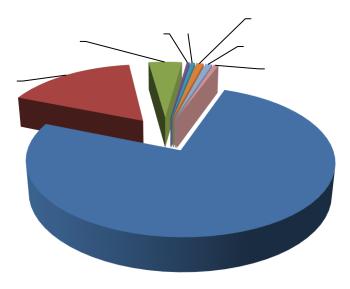


Source: SENER, PRODESEN 2016-2030.

According to the PRODESEN, the highest power demand registered in the NEZ was 8,248 MWh/h in August 2015. During the next 15 years, it is estimated that NEZ power demand will increase 4.2% annually. The Power Sector Capital Improvement Program for 2014-2028 (POISE) also indicates that the energy produced in the NEZ is mainly consumed in the Monterrey metropolitan area, which recorded peak demand of 4,121 MWh/h in August 2013. The Saltillo area has the second highest power demand in the zone and is expected to experience moderate growth in the short term. To better manage the energy needs of Monterrey and Saltillo, the northeast power grid is interconnected with the coal-fired plants in Piedras Negras and the combined-cycle plants in Reynosa, Matamoros and San Luis Potosi. The Victoria area has also seen favorable economic development. Therefore, based on projected energy demand, an increase in the transformation (substation) capacity in Güémez, Saltillo, Monterrey and Tampico is being considered in the short term.

Electricity generation capacity in Tamaulipas was 5,776 MW in 2015. Figure 4 shows the technologies used for electricity generation in the state of Tamaulipas.<sup>8</sup>

<sup>&</sup>lt;sup>8</sup> Source: SENER, <u>https://www.gob.mx/sener/acciones-y-programas/programa-de-desarrollo-del-sistema-electrico-nacional-33462</u>.



Source: SENER, PRODESEN 2016-2030

Annual electricity generation by technology type in the state of Tamaulipas is presented in the following table.

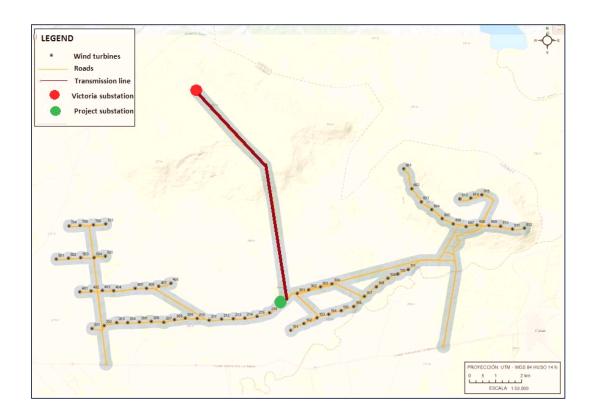
Combined cycle	31,852.0	85.7%
Conventional thermoelectric	3,247.0	8.7%
Turbogas	1,556.0	4.2%
Internal combustion	62.0	0.2%
Hydroelectric	7.0	0.0%
Wind	160.0	0.4%
Bioenergy	32.0	0.1%
Cogeneration	249.0	0.7%

Source: SENER, PRODESEN 2016-2030

At the state level, the 2011-2016 Tamaulipas Development Plan contains 16 objectives for supporting areas of strategic development in Tamaulipas including environmental objectives to promote the development of clean energy alternatives, such as renewable energy projects for residential and industrial consumption.

#### Project Scope and Design

The Project consists of designing, constructing and operating a 117.3-MW wind farm, on approximately 10,527 hectares (26,012.78 acres) of rural land. Figure 5 shows the Project site and the proposed layout of the wind farm.



The Project components include the installation of 34 wind turbines, one substation and a transmission line. The energy generated by each wind turbine will be conveyed to the collecting substation through 34.5-kV underground lines. From there, the electricity generated by the Project will be conveyed through a 115-kV overhead transmission line extending 8.23 km (5.11 miles) to the Victoria Substation (currently under construction), where it will be interconnected to an existing transmission line extending 26.7 km (16.6 miles) to the CFE Güémez Substation.

Since this is a grandfathered project, the Sponsor must secure funding, engage the main equipment suppliers and invest at least 30% of the total project cost by December 31, 2016. In accordance with the Electricity Industry Law, the Sponsor will submit a request to CRE to extend the period to comply with these requirements. Construction of the Project is scheduled to start in December 2016, and the Commercial Operation Date (COD) will be no later than June 2018.<sup>9</sup> Table 2 presents the status of key tasks for the implementation of the Project.

<sup>&</sup>lt;sup>9</sup> Information provided by the Sponsor.

Land lease agreements for the Project	Completed (September 2016)	
Authorization to install wind turbines issued by the Ministry of	Completed (April 2016)	
Communications and Transportation (SCT)		
Indicative interconnection study	Completed	
CRE authorization for energy generation	Completed (October 2015)	
CENACE interconnection agreement	In progress	
Archeological clearance by the National Institute of Anthropology	Pending	
and History (INAH)		
SEMARNAT environmental authorization for the wind farm (MIA	Completed (June 2016)	
resolution)		
Land use change authorization issued by SEMARNAT	In progress	
Turbine Supply Agreement	In progress	
Power purchase agreement	In progress	
Independent engineering final report	Pending	
Commercial operation date	June 2018	

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 duediligence 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 has selected VESTAS as the wind turbine manufacturer, whose equipment is suited to the characteristics of the Project site and will obtain the best performance (longterm energy output) based on the wind resource. The process for technology evaluation considered elements such as profitability, contract terms, warranties and delivery times. The main components of the Project include:

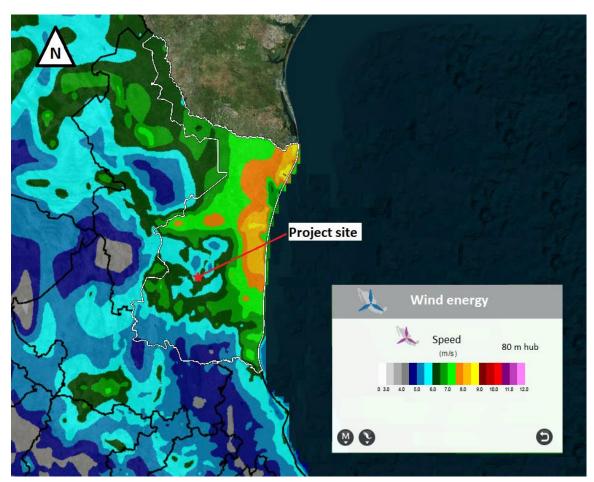
• <u>Wind Turbines</u>. A total of 34 wind turbines will be mounted on steel towers for a total installed capacity of 117.3 MW. Wind turbine transformers will step up the voltage of generated power to 34.5 kV for transmission through an insulated underground cable to the Project substation. In addition, a standard long-term operation and maintenance contract will be included with provisions regarding operational availability warranties.

- *Foundations*. They will be sized to withstand the stress produced by the forces acting on the towers. The foundations also include piping for ground, medium-voltage and optic-fiber cables.
- <u>Electrical substation and transmission line</u>. One substation will be constructed to collect the 34.5-kV energy produced by the turbines and transmitted through underground cables. The collecting substation will step up the energy to 115 kV, which will be delivered to the Victoria Substation through a transmission line extending 8.23 km (5.11 miles), where it will be interconnected to the CFE Güémez Substation through an existing transmission line with sufficient capacity to convey the additional energy generated by this Project.
- <u>Monitoring and Control System</u>. 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.
- <u>Roads</u>. A grid of roads will be constructed for the Project, which will be used as access to the wind turbines and the collecting substation. The roads will allow the transportation of the components, machinery, equipment and materials required for construction of the wind turbines and collecting substation. The roads will be unpaved and designed for low-volume traffic. Water will be sprayed to control dust emissions when required.
- <u>Operation and Maintenance (O&M) Facilities</u>. A permanent O&M facility will be built with administrative space, as well as for the maintenance and storage of equipment during construction and operation.

Instead of using an EPC full-wrap contract for Project construction, the Sponsor has decided to use its construction management company to manage the Turbine Supply Agreement and Balance of Plant contracts, which cover engineering designs, civil works and electrical works. This contractual structure was used in the El Porvenir wind project (54 MW), which was partially funded by NADB. The Sponsor has also gained additional experience using this structure in other projects that it has developed in other countries.

#### Wind Resource Assessment

The Project is located in the state of Tamaulipas, where mid-level wind power density has been reported. According to SENER, average annual wind speed



Source: SENER. National Renewable Energy Inventory

In order to assess the wind resources available in the Project area, three meteorological towers were installed at the Project site between May 2014 and August 2014, to collect data, such as wind speed, wind direction and temperature at different altitudes. Data from the towers for the last two years has been collected, validated and incorporated into a wind resource analysis. Based on the preliminary results, it is estimated that the Project will produce an average of 452 GWh of electricity at P50 generation. The results and wind measurements will be vetted for accuracy and related risks by an independent engineer prior to financial closing.

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

The Project will be developed on 10,527 hectares (26,012.78 acres) of privately owned land. The land is divided into four tracts known as Rancho El Melón, Rancho Loma Prieta and Rancho El Soldado A and B. All four tracts have been secured through lease agreements. The Project site is surrounded by land for livestock ranching.

Land use change authorization from the Ministry of Environment and Natural Resources (SEMARNAT) will be required for construction of the Project, which will occupy approximately 129.72 hectares (320.54 acres) of land classified as forest. The Sponsor submitted the formal request on June 14, 2016, and expects to receive authorization by the end of September 2016.

The transmission line for the Project is expected to make use of right-of-ways and transmission towers belonging to the Victoria wind project, owned by the same Sponsor. Therefore, the Vicente Guerrero SPV and the Victoria SPV will enter into a shared facilities agreement. Through this agreement, the Victoria SPV will grant access to the right-of-ways for its leased land, electricity towers and substations. In exchange, Vicente Guerrero will pay Victoria the corresponding lease and equipment amortization costs.

Obtaining the appropriate permits and authorizations as Project construction advances will be a requirement for loan disbursement.

#### 2.1.4. Management and Operations

Grupo Energía México GEMEX, S.A. de C.V., has experience in developing and operating wind projects in Mexico, such as the 54-MW El Porvenir project in Tamaulipas, which has been in operation since March 2014. The Sponsor is also constructing the Victoria and La Mesa wind energy projects, with a capacity of 49.5 MW each, in 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, as well as 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

According to the Environmental Impact Assessment (MIA) Resolution issued by SEMARNAT on June 14, 2016, the following laws and standards apply to the Project:

• <u>General Law of Ecological Balance and Environmental Protection (LGEEPA)</u>, 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.

- <u>Federal Standard NOM-045-SEMARNAT-2006</u>, which establishes the maximum levels of exhaust fume opacity from vehicles that use diesel.
- <u>Federal Standard NOM-050-SEMARNAT-1993</u>, which establishes the maximum levels of exhaust fume opacity from vehicles that use liquefied petroleum gas, natural gas and other alternative fuels.
- <u>Federal Standard NOM-052-SEMARNAT-2005</u>, which establishes the characteristics, identification procedures and classification of hazardous solid waste, as well as a list of such materials.
- <u>Federal Standard NOM-053-SEMARNAT-1993</u>, which establishes the procedures to perform extraction tests to determine the components considered as hazardous in solid waste.
- <u>Federal Standard NOM-054-SEMARNAT-1993</u>, which establishes the procedures to determine incompatibility between two or more types of solid waste considered hazardous in NOM-052-SEMARNAT-2005.
- <u>Federal Standard NOM-059-SEMARNAT-2010</u>, which identifies and lists endangered species or clusters of wildlife in Mexico and establishes the criteria for inclusion, exclusion or change in risk status for different species, based on a method for assessing the risk of extinction.
- <u>Federal Standard NOM-080-SEMARNAT-1994</u>, which establishes the maximum permissible noise levels of exhaust systems of motor vehicles, motorcycles, and three-wheel motor vehicles, as well as noise measuring methods.
- <u>Federal Standard NOM-081-SEMARNAT-1994</u>, which establishes the maximum noise levels from stationary sources and noise measuring methods.

#### Environmental Studies and Compliance Activities

The Project is subject to federal environmental clearance authorizations in Mexico. In accordance with the environmental impact regulations established under the LGEEPA, the Sponsor prepared and submitted a MIA on January 20, 2016, for the construction of a wind farm in Güémez, Tamaulipas. The MIA identified, described and evaluated the potential environmental impacts associated with the Project, as well as the proposed mitigation measures in order to avoid or minimize any negative effects or impacts.

On June 14, 2016, SEMARNAT issued MIA Resolution No. SGPARN/03-1426/16, authorizing the construction of a wind farm with up to 208 MW of capacity and related infrastructure. The MIA Resolution concluded that, although the Project would have an impact on wildlife, the impact could be minimized by implementing a set of mitigation measures proposed by the Sponsor. It also established follow-up conditions for the Project.

As part of the MIA for the Project, the Sponsor conducted a Bird Study from September 2014 to August 2015. The purpose of the study was to identify migratory birds designated as special status species, occurring within the Project site. A total of 171 bird species were detected, 19 of which are identified within a protected category in accordance with Mexican standard NOM-

059-SEMARNAT-2010. Additional information about the mitigation measures and conditions included in the MIA Resolution are described in Section 2.2.2 of this document.

A Bat Study was also initiated by the Sponsor in September 2015 and will be completed in October 2016. A total of 93 bats representing six species were identified between September and December 2015. None of them are listed in Mexican standard NOM-059-SEMARNAT-2010. An insect and butterfly study was conducted in June 2015. No monarch butterflies were detected.

#### Pending Environmental Tasks and Authorizations

The Forest Land Use Change authorization from SEMARNAT is in process. All environmental authorizations will have to be secured prior to loan disbursement.

#### Compliance Documentation

MIA Resolution No. SGPARN/03-1426/16 was issued by the SEMARNAT Office in Tamaulipas in June 2016.

#### 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 caused 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. It 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 ( $SO_2$ ) and nitrogen oxides (NOx).

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 117.3 MW of new renewable energy generation capacity (or approximately 452

GWh), are the displacement of 177,716 metric tons/year of carbon dioxide, 1 metric ton/year of sulfur dioxide, and 620 metric tons/year of nitrogen oxides.<sup>11</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 activities. To ensure that mitigation measures are implemented properly and in a timely manner, the Sponsor will also develop the Environmental Monitoring Program described in the Project MIA. The following mitigation measures included in the MIA and its resolution will be implemented:

- <u>Flora</u>
  - Native vegetation will be protected by placing signs to identify those species that must not be disturbed.
  - The use of chemical substances or fire to remove vegetation will be banned.
  - A relocation program for vegetation will be prepared and implemented to protect various species.
  - A Vegetation Restoration Program will be developed to carry out the activities necessary to restore vegetative cover.
- <u>Fauna</u>
  - The Sponsor will prepare a Fauna Protection and Conservation Program to protect the wildlife present in the Project area, especially the species listed in Mexican standard NOM-059-SEMARNAT-2010.
  - The Sponsor will not acquire, dispose of, donate, market, distribute, transport, hunt, gather, capture or sell any protected flora and fauna that might be found area of influence of the Project.
  - Prior to initiating any land clearing processes, a wildlife rescue program will be implemented.
  - Amphibians and reptiles will be relocated during site preparation activities.
  - Vegetation removal activities will be carried out gradually to allow movement of fauna.
  - Avoid any activities during breeding season, especially if endangered species are found.
  - The implementation of mitigation measures will be monitored by a specialized technician.
- <u>Air Quality</u>

 $<sup>^{11}</sup>$  CO<sub>2</sub>, SO<sub>2</sub> and NOx calculations are based on emission displacement from wind energy generation equivalent to 452 GWh of energy produced by natural gas power generation, which is the predominant fuel source in Tamaulipas.

- Vehicles will travel at low speeds on roads that will be watered to minimize particulate matter emission. The Sponsor will obtain the necessary permits to obtain water from local sources.
- Construction vehicles will receive regular maintenance and tune-ups to keep emissions within the limits of the applicable Mexican standards.
- <u>Noise</u>
  - The Sponsor shall conduct noise studies during all stages of the Project, in accordance with Mexican standard NOM-081-SEMARNAT-1994. The results must be included in the compliance documentation to be submitted to SEMARNAT.
  - The Sponsor will schedule construction activities so as to minimize noise levels generated by heavy machinery.
- Solid Waste
  - Dumpsters will be placed in work areas to collect solid waste.
  - Organic waste will be deposited in containers and will be disposed of in accordance with applicable regulations.
  - Solid waste will be recycled by authorized contractors, as appropriate.
  - Hazardous solid waste will be handled and stored in accordance with applicable regulations.
- <u>Soil</u>: Maintenance works will be carried out in designated areas to avoid soil contamination. If accidental leaks or spills occur, the contaminated soil will immediately be removed and the area remediated.

#### 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 452 GWh of zero-carbon electricity per year, equivalent to the annual energy consumption of 62,302 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 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 and comply with emissions regulations, while satisfying increased demand for electricity. Should the Project not be implemented, the mix of renewables in Mexico's energy portfolio 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 transboundary impacts are anticipated as a result of the development of the wind energy project, given its distance from the border. However, the Project will aid in addressing the larger environmental concerns related to greenhouse gases and global warming targeted by international agendas and will be consistent with the North American Climate, Clean Energy, and Environment Partnership Action Plan announced by the Governments of the U.S., Mexico and Canada on June 29, 2016.

#### **Other Local Benefits**

The Project will promote the social and economic development of the municipality of Güémez, 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 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. NADB will be participating in the transaction with another senior lender. 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 Vicente Guerrero.

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 Vicente Guerrero has the legal authority to contract financing and pledge their revenue for the payment of financial obligations. Compañía Eólica Vicente Guerrero has also the legal and financial capacity to operate and maintain the Project based on the experience provided by their development team. Compañía Eólica Vicente Guerrero 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 long term senior loan for the equivalent in pesos of up to \$30.0 million dollars, to the Compañía Eólica Vicente Guerrero, S.A. de C.V. for the construction of the project described herein.

BECC released the draft project certification and financing proposal for a 30-day public comment period beginning August 17, 2016. The following documentation was made available upon request:

- Environmental Impact Assessment (MIA) of the Vicente Guerrero Wind Farm, January 2016.
- MIA Resolution No. SGPARN/03-1426/16 issued by the SEMARNAT Delegation in Tamaulipas.

The public comment period ended on September 16, 2016, with no comments received.

As part of the environmental authorization process, on January 21, 2016, SEMARNAT published the request for environmental authorization of the Project in its weekly publication (*Gaceta Ecológica*), which provides information about the projects under evaluation. The ruling did not report any public comments received. Additionally, on January 22, 2016, the Sponsor published an extract of the MIA under review by SEMARNAT in the newspaper, *Diario de Ciudad Victoria*.

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 *Revista Eólica y del Vehículo Eléctrico, Nuevo Laredo Noticias* and *La Pista*.

These articles can be found at the following links:

- <u>Revista Eólica y del Vehículo Eléctrico</u> (January 13, 2014) "Eólica y energías renovables: Desarrollo de las renovables en la frontera de México con EEUU" (Wind and renewable energy: Development of renewables on the U.S.-Mexico border) <u>http://www.evwind.com/2014/01/13/eolica-y-energias-renovables-mexico-cuneta-conun-gran-potencia-de-renovables-en-su-frontera-con-ee-uu/</u>
- <u>Nuevo Laredo Noticias</u> (2013) "Producirán municipios de Tamaulipas su propia luz" (Municipalities in Tamaulipas will produce their own electricity) <u>http://nuevolaredoenvivonoticias.blogspot.mx/2013/10/produciran-municipios-de-tamaulipas-su.html</u>
- <u>La Pista</u> (February 24, 2015) "Se construyen cuatro nuevas plantas eólicas: SEDUMA" (Four new wind farms to be built: Tamaulipas Ministry of Urban Development and Environment [SEDUMA]) <u>http://periodicolapista.com.mx/se-construyen-cuatro-nuevas-plantas-eolicas-seduma/</u>

In summary, these publications highlight the scope of the Project. 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.