



### **CERTIFICATION AND FINANCING PROPOSAL**

# EDPR WIND ENERGY PROJECT IN GENERAL CEPEDA, COAHUILA

Revised: September 10, 2015

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#### **EXECUTIVE SUMMARY**

## EDPR WIND ENERGY PROJECT IN GENERAL CEPEDA, COAHUILA

**Project:** The project consists of the design, construction and operation of a

wind energy farm of up to 199.5 MW located in General Cepeda, Coahuila (the "Project"). The energy generated will be purchased by Industrias Peñoles, S.A.B. de C.V., ("Peñoles"), pursuant to a long-term power purchase agreement (PPA) executed with the special-purpose

company created to carry out the Project.

**Project Objective:** The Project will increase installed capacity of renewable energy

resources, which will reduce the demand on traditional fossil-fuelbased energy production and contribute to the displacement of greenhouse gas emissions and other pollutants from power generated

by fossil fuels.

**Expected Project Outcomes:** 

The estimated environmental and human health outcomes resulting from the installation of up to 199.5 MW of new renewable energy generation capacity are:

- a) Generation of approximately 763 gigawatt-hours (GWh) of electricity a year, <sup>1</sup> and
- b) The displacement of approximately 381,424 metric tons/year of carbon dioxide equivalent (CO<sub>2</sub>e).<sup>2</sup>

**Sponsor:** EDP Renováveis, S.A. (EDPR).

**Borrower:** Eólica de Coahuila, S.A. de C.V.

NADB Loan Amount: Up to US\$95 million.

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 $<sup>^{1}</sup>$  The environmental impact is calculated based on P50 generation data provided by the Sponsor.

 $<sup>^2</sup>$  CO $_2$ e calculations are based on the potential emissions displaced as a result of reducing future demand on fossil-fuel-based electricity through the use of wind energy generation equivalent to 763 GWh. Typically, BECC's CO $_2$ e calculations are based on emission factors from an energy generation facility close to the Project area, which in this case would be a coal-fired plant, as coal is the predominant fuel source in Coahuila. However, it is unlikely that a reduction or expansion of a coal-fired power plant will occur; therefore, the CO $_2$ e calculation was based on the national emission factor. National emission factors for SO $_2$  and NOx are not available and, thus, are not considered in the results measurement scheme for this Project.

#### CERTIFICATION AND FINANCING PROPOSAL

### EDPR WIND ENERGY PROJECT IN GENERAL CEPEDA, COAHUILA

#### 1. ELIGIBILITY

#### Project Type

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

#### **Project Location**

The Project is located in the municipality of General Cepeda, Coahuila, approximately 250 km (155 miles) south of the U.S.-Mexico border.

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

The private-sector Sponsor is EDP Renováveis, S.A. (EDPR or the "Sponsor"), which will use a special-purpose company called Eólica de Coahuila, S.A. de C.V., to implement the Project. Eólica de Coahuila is a Mexican-based company incorporated on March 19, 2013. Its contact representative is Gabriel Cristian Yamal.

#### 2. CERTIFICATION CRITERIA

#### 2.1. TECHNICAL CRITERIA

#### 2.1.1. Project Description

#### **Geographic Location**

The Project site is located in the municipality of General Cepeda (at coordinates 25° 41′ 05″ latitude and 101° 27′ 11″ longitude), approximately 29 miles northwest of Saltillo, Coahuila. The Project will be developed in an area of approximately 4,753.55 hectares (11,746 acres).

Figure 1 below shows the approximate geographic location of the Project. The polygon represents the site for the construction.

SEPTEMBER XX, 2014

### Figure 1 PROJECT VICINITY MAP

SEPTEMBER 10, 2015

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services (10.1%), transportation (9.9%), construction activities (9.1%) and education and medical services (7.6%). The remaining 16.9% of the GDP is distributed among other productive sectors, including agriculture, mining, government activities, financial services, the food industry and professional services.

#### **Local Energy Profile**

In 2014, the legal framework of Mexico's National Power System underwent a major reform aimed at facilitating investments to 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 federal decentralized agency created by the government to operate the National Power System (SEN), and CFE becomes a for-profit, state-owned power supply company that will compete in an open market. It is important to note that the regulations are still under discussion and that the characteristics of the Mexican energy market will change as the regulations are implemented. As a result of the energy reform, CENACE will now operate an electric grid with more than 537,515 miles of transmission and distribution lines previously operated by CFE,<sup>7</sup> and CFE will continue supplying electricity to more than 38 million residential, commercial, industrial and public accounts.

During the past 10 years, power generation for public service has increased 27%, with electricity production totaling 258,613 gigawatt-hours (GWh) in 2013. CFE generates electricity using various technologies and sources of energy. To better support opportunities for increasing and diversifying its 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 sectors. CRE is responsible for issuing permits to private entities for power generation and the transmission of natural gas. The 2014 energy reform and new laws are transforming the entire power industry in Mexico and will consolidate these diversification efforts.

To promote the use of renewable energy, the Mexican federal government has also enacted two laws over the past six years: the Law for Renewable Energy Use and Energy Transition Financing (LAERFTE) in 2008 and the General Law of Climate Change in 2012. Both laws specify, among other provisions, that the use of clean technologies in power generation be increased to at least 35% by 2024.

According to the Power Sector Outlook for 2014-2028 (PSE) developed by the Mexican Ministry of Energy (SENER), Mexico had 64,456.3 MW of installed power capacity by the end of 2013, which represents an increase of 1.1% compared to 2012. Of that amount, 83.8% (54,034.9 MW) corresponds to the public sector and is managed by CFE. Mexico's energy portfolio includes

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<sup>&</sup>lt;sup>7</sup> Source: Mexican Ministry of Energy (SENER), Power Sector Outlook for 2014-2028.

<sup>8</sup> Source: Ihid

combined-cycle, thermoelectric, geothermal, hydroelectric, coal-fired, photovoltaic solar, wind and nuclear power plants. The PSE contemplates an Expansion and Decommissioning Program, which would entail adding 55,550 MW of capacity to the existing system over the next 15 years to achieve a gross capacity of 95,342 MW by 2028. Figure 2 shows the technologies used for electricity generation in Mexico.

Solar Geothermal 0.0% 1.5% Nuclear . 3.0% Combined cycle Coal 33.9% 10.1% Thermoelectric 22.4% Turbogas 5.6% Wind Internal combustion 1.1% 0.5%

Figure 2
CFE PORTFOLIO OF ENERGY TECHNOLOGIES BY GENERATION CAPACITY IN 2012

Source: SENER, Power Sector Outlook for 2014-2028.

During 2013, the public power system in Mexico generated 258,613 GWh of electricity from all sources. Compared to 2012, percentage of gross power generation from fossil fuels—such as coal, natural gas and fuel oil, among others—fell by 3.1%, to a total of 81.9%, while power generation from non-fossil-fuel sources was 18.1%. Figure 3 shows gross power production by technology in the public sector in 2013.

Geothermal Wind Dual Solar 2.3% Nuclear 4.2% 0.7% 0.01% 4.6% Coal Hydroelectric Combined cycle 49.2% Turbogas and internal Thermoelectric combustion 18.2% 2.1%

Figure 3
CFE ENERGY GROSS PRODUCTION BY TECHNOLOGY, 2013

Source: SENER, Power Sector Outlook for 2014-2028.

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, 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.

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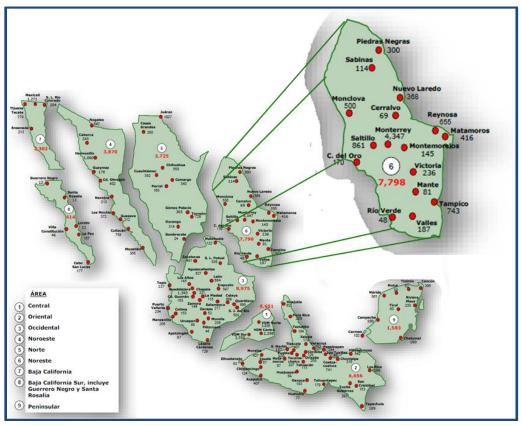


Figure 4
MEXICO ELECTRIC SYSTEM ZONES

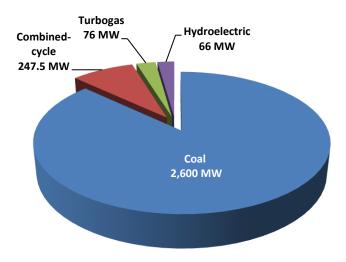
Source: CFE, Power Sector Capital Improvement Program for 2014-2028 (data from 2012).

According to the Power Sector Capital Improvement Program for 2014-2028 (POISE), maximum power demand in the Northeast Zone was 7,798 MW in 2012. During the previous five years, average annual power demand in the zone grew at a rate of 4.1%. The POISE also indicates that the energy produced in the Northeast Zone is mainly consumed in the Monterrey metropolitan area, which recorded maximum demand of 4,121 MW in August 2013. The Saltillo area has the second highest power demand in the zone and is expected to experience moderate growth in the near 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.

According to SENER, the generation capacity of Coahuila was 2,989.5 MW in 2013. Figure 5 shows the distribution of the energy technologies in the state.

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Figure 5
COAHUILA PORTFOLIO OF ENERGY TECHNOLOGIES
BY GENERATION CAPACITY IN 2013



Source: SENER, Power Sector Outlook for 2014-2028.

The technologies used to generate electricity in the state of Coahuila for public service, along with their capacity factor, are described in Table 1.

Table 1
POWER GENERATED IN COAHUILA IN 2012

Technology	GWh	% of Energy Generation	Capacity Factor*
Coal	17,724.1	90.12%	77.82%
Combined-cycle	1,691.6	8.60%	78.02%
Turbo gas	82.4	0.42%	12.38%
Hydroelectric	169.2	0.86%	29.27%
TOTAL	19,667.3	100.00%	

<sup>\*</sup>Average capacity factors based on 2012 information. The capacity factor is the ratio of the gross electricity produced over a given period of time to the potential energy that could have been produced if the plant had been operated continuously at full capacity during the same period.

At the state level, the Coahuila Development Plan for 2011-2017 contains 39 objectives for supporting areas of strategic development. The environmental objectives include the prevention, control and reduction of pollutant levels, as well as the promotion of mitigation and adaption initiatives for climate change.

As a result of this Project, renewable energy will account for almost 4% of gross power production in the state of Coahuila, while the percentage of coal-fired power generation will drop from 90.12% to 86.75%.

#### **Project Scope and Design**

The scope of the Project is to design, build and operate a wind farm with up to 199.5 MW of capacity. The Project will be developed on land within General Cepeda and will occupy an area of approximately 4,753.55 hectares (11,746 acres). Figure 6 shows the estimated Project site, still subject to changes in the layout.



Figure 6
PROJECT SITE

The Project components include the construction of up to 95 wind turbines, two substations and a transmission line. The energy generated by each wind turbine will be conveyed to the step-up substation through 34.5-kV underground transmission lines. The Project will be interconnected to an additional substation through a 5-kilometer, 230-kV overhead transmission line. Access to the site and turbines will be supported by a 63-km (39-mile) network of roads.

The Project is expected to begin construction by late fourth quarter of 2015, and the Commercial Operation Date (COD) is December 2016. Table 2 presents the status of key tasks for Project implementation.

Table 2
PROJECT MILESTONES

Key Milestones	Status	
Land lease agreement for the Project	Completed May 2014	
Land lease agreement for the substation	Completed May 2014	
Authorization to install wind turbines issued by the General Civil	Completed May 2015	
Aeronautics Directorate (DGAC) of the Ministry of Communications		
and Transportation (SCT)		
CRE authorization for energy generation	Completed August 2013	
CFE interconnection agreement	Completed May 2014	
SEMARNAT environmental authorization for the Project and	MIA resolution completed	
transmission line (MIA resolution)	June 2015	
MIA amendment pending for additional turbine	MIA amendment pending	
Forest Land Use Change authorizations for the Project, transmission	In process	
line and one additional wind turbine issued by SEMARNAT		
Crossing permits and highway connections from SCT	Completed July 2015	
Turbine Supply Agreement (TSA)	In process	
Balance of Plant (BOP) Agreement	In process	
Independent engineer's final report	In process	
Commercial operation date	December 2016	

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 wind turbine 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 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 also considered elements such as profitability, contract terms, warranties and delivery times.

The main components of the Project include:

• <u>Wind turbines</u>. The Project will include the installation of 95 wind turbines, with a nominal power of 2.1 MW each. The turbines have fiberglass reinforced blades and a gear box with one planetary stage and two parallel stages. The steel towers will have a hub height of 80 meters (262.5 ft.). Wind turbine transformers will step up the voltage of generated power to 34.5 kV for transmission to the collector substation.

- <u>Foundations</u>. Reinforced concrete will be used to build the foundations, which will be sized to withstand shear stresses produced by forces acting on the towers. The foundations also include piping for ground, medium-voltage and fiber optic cables.
- <u>Electrical substations and transmission line</u>. Two substations will be constructed to collect and distribute the 34.5 kV energy supply. Energy will be delivered primarily through underground lines to the collector substation, where it will be stepped up to 230 kV and delivered to the interconnection substation through an overhead transmission line.
- 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 wind turbines are running in an efficient and safe manner. Additionally, the system will be able to monitor and record the atmospheric data from multiple meteorological towers.
- <u>Roads.</u> Approximately 63 km (39 miles) of roads will be constructed to allow access to
  the site during construction and operation. The roads will be constructed using gravel
  and water will be sprayed to control dust emissions when required.
- Operation and maintenance facilities. An O&M facility will be developed as part of the Project and will include a permanent administrative, maintenance and storage building for equipment during construction and operation.
- <u>Meteorological towers</u>. One permanent tower will be installed at the site for wind monitoring and evaluation of potential energy generation.

Water used during the construction phase will be transported by water tanks to the Project site.

#### Wind Resource Assessment

The Project is located in the state of Coahuila, where mid-level wind power density has been reported. According to SENER, average wind speed in the state ranges from 5 to 8 m/s (see Figure 7).<sup>9</sup>

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<sup>&</sup>lt;sup>9</sup> Source: SENER, National Renewable Energy Inventory (http://inere.energia.gob.mx/publica/version3.5/).

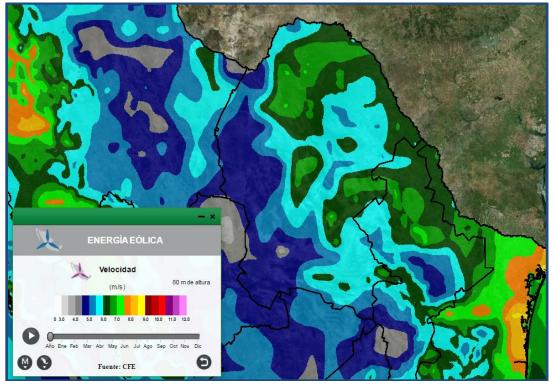


Figure 7
REGIONAL WIND RESOURCE POTENTIAL

Source: SENER.

In order to assess the wind resources available in the Project area, five meteorological towers were installed at the Project site between March 2012 and April 2014, to collect data such as the wind speed, wind direction and temperature at different altitudes. 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 produce an average of 763 GWh of electricity at P50 generation. The results and wind measurements are being vetted for accuracy and related risks by an independent engineer.

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

The Project will be developed on 4,753.55 hectares (11,746 acres) of land, mostly privately-owned, which the Sponsor has secured through leasing agreements and includes a right of way from communal land owners (*ejido*) for a transmission line. Documentation related to these agreements has been provided by the Sponsor. The Project site is surrounded by land for livestock ranching.

<sup>&</sup>lt;sup>10</sup> Source: Information provided by the Sponsor.

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Land Use Change authorization from the Ministry of Environment and Natural Resources (SEMARNAT) will be required for construction of the Project, including the transmission line. The Sponsor submitted the formal request on March 3, 2015, and expects to receive authorization by the third quarter of 2015.

The access roads, underground collection system and overhead transmission lines require right-of-way authorization from the SCT for railroad crossings and federal roads. The Sponsor submitted the applications for these permits between November 2014 and February 2015, and received those on or prior to July, 2015. The Sponsor is preparing an amendment to the SCT permits to include one additional wind turbine as part of the Project, which will be submitted to the General Office of Civil Aviation.

The Sponsor has also obtained permits from the Mexico National Water Commission (CONAGUA) for the construction of drainage works and infrastructure that crosses the tributaries of Las Vegas Creek and other dry stream beds, through Authorization No.0176 signed on December 10, 2014.

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

#### 2.1.4. Management and Operations

EDPR is a world leader in the development of renewable energy projects and has been developing and operating wind farms since 1996. It is the fourth largest wind energy developer in the world, with an installed capacity of 8.1 GW worldwide, including Spain, Portugal, France, Poland, the United States and Romania. Its global presence is managed by two regional offices, one in the USA and the other in Europe. The company's mission is to be a long-term market leader in the renewable energy sector, pursuing credibility through social responsibility, innovation and respect for the environment, among other values.<sup>11</sup> The company has received support from experts with experience in this type of projects in Mexico.

The proposed Project will be designed to operate with minimal human intervention. Operation and maintenance tasks will be performed to optimize the operating time of the turbines, 4(an), s 0 0MD7.383(6) TJET

#### 2.2. ENVIRONMENTAL CRITERIA

#### 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 9, 2015, the following laws and standards apply to the Project:

- 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
  environmental problems can be addressed directly.
- <u>Federal Standard NOM-041-SEMARNAT-2006</u>, which establishes the maximum permissible levels of pollutants emitted from gasoline-fueled vehicles.
- <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-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-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**

In accordance with the environmental impact regulations established under the LGEEPA, the Sponsor prepared and submitted a MIA on December 2, 2014, for the construction of a wind farm in General Cepeda, Coahuila. 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.

Since the Project area is located near the El Tulillo Dam, which is an important bird conservation area, the MIA included a detailed bird, bat and Monarch butterfly monitoring study performed from April 2013 to May 2014 and a study evaluating the risk to birds, bats and monarch butterflies. The presence of 139 bird and 17 bat species were reported, of which 11 bird and 1 bat species are listed and protected under NOM-059-SEMARNAT-2010. Monarch butterflies were also detected, but the study indicated that the Project area is not part of their migratory

corridor. The MIA also identified non-significant impacts to soil, water and air, as well as low to medium impacts to local wildlife, and proposed mitigation measures to minimize them.

On June 9, 2015, SEMARNAT issued MIA Resolution No. SGPA/DGIRA/DG/04274, authorizing the development of the Project, which included the facilities described therein. The MIA Resolution concluded that, although the Project would have an impact on the wildlife, the impact could be minimized by implementing the mitigation measures proposed by the Sponsor. It also established follow-up conditions for the Project. Additional information about the mitigation measures and conditions included in the MIA Resolution are described in Section 2.2.2.

The original MIA approved by SEMARNAT covered the construction of 94 wind turbines. The Sponsor is preparing an amendment to the MIA to be submitted to SEMARNAT to include one additional wind turbine as part of the Project.

In November 2014, the Mexican National Institute of Anthropology and History (INAH) conducted a visual inspection of the Project site. No archaeological features were found. INAH issued No Objection Letter No. 401.F(4)19.2014/CIC/501 for the construction of the Project.

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

The following environmental authorizations are pending:

- SEMARNAT Forest Land Use Change Authorization for the Project and transmission line.
- SEMARNAT Forest Land Use Change Authorization for one additional wind turbine.

All environmental authorizations will have to be secured prior to loan disbursement.

#### **Compliance Documentation**

The Sponsor has obtained the following federal environmental and cultural clearances required for the Project:

- MIA Resolution No. SGPA/DGIRA/DG/04274 issued by the SEMARNAT Delegation in Coahuila.
- No objection Resolution No. 401.F(4)19.2014/CIC/501 from INAH.

#### 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 that 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 will not use 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 production can affect the natural environment due to harmful emissions that it generates, including GHG and other pollutants, such as sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NOx).

The Project will help to 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 up to 199.5 MW of new renewable energy generation capacity (or approximately 763 GWh), include the displacement of 381,424 metric tons/year of carbon dioxide equivalent  $(CO_2e)$ .

#### 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 has also developed an Environmental Monitoring Program described in the Project MIA. The following mitigation measures are proposed:

#### Air quality

- Vehicles and machinery will receive proper maintenance to lower the emissions.
- The access roads will be watered to reduce dust generation.

#### Noise

 Heavy machinery and portable generators will be located at a considerable distance from workers.

 A noise monitoring system will be installed in the Project area during construction phase. Noise levels are expected to be lower than 45dB.

<sup>&</sup>lt;sup>12</sup> CO<sub>2</sub>e calculations are based on the potential emissions displaced as a result of reducing future demand on fossil-fuel-based electricity through the use of wind energy generation equivalent to 763 GWh. Typically, BECC's CO<sub>2</sub>e calculations are based on emission factors from an energy generation facility close to the Project area, which in this case, would be a coal-fired plant, as coal is the predominant fuel source in Coahuila. However, it is unlikely that a reduction or expansion of a coal-fired power plant will occur; therefore, the CO<sub>2</sub>e calculation was based on the national emission factor. National emission factors for SO<sub>2</sub> and NOx are not available and, thus, are not considered in the results measurement scheme for this Project.

#### • Soil and Solid Waste

- Oils, fuels, and other pollutants will not be placed directly on the ground during any stage of Project development or operation.
- Procedures for the separation, storage, collection and use or disposal of different types of waste generated in the different stages of the Project, will be implemented.
- Solid waste will be handled in accordance with the General Law for Comprehensive Waste Management and Prevention and its regulations.

#### Flora

- A prospective study must be developed prior to site preparation to justify the location selected for the installation of infrastructure and ensure the integrity of plant habitats.
- o In order to avoid removal of additional flora, the Sponsor will carry out ground-disturbing works only in the designated Project areas.
- o Promote restitution of previously disturbed areas with native species.

#### Fauna

- A prospective study must be developed prior to site preparation to justify the location selected for the installation of infrastructure and ensure the integrity of wildlife habitats.
- The Sponsor will implement a Flying Fauna Monitoring Program for at least one year during Project preparation and construction. The Program must be extended to the operational phase for a period of at least ten years to demonstrate that there will be no impacts to fauna other than those already anticipated, including the Monarch butterfly, as a result of the Project. If any impacts are identified, the Sponsor must submit a plan to SEMARNAT demonstrating that the necessary activities for avoiding or minimizing these impacts have been implemented.
- The Sponsor will use slow-speed rotation wind turbines to minimize bat collisions.
- Prior to carrying out excavation and land clearing activities, a preliminary site review must be made to identify and, if applicable, relocate nests, shelters and burrows properly.
- <u>Water resources</u>: A Protection Program for Aquifers and Storm Water Management will be developed for the Project to ensure the conservation of water resources given the Project's proximity to the El Tulillo reservoir and the use of lubricants during maintenance activities.

#### 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 763 GWh of zero-carbon electricity per year, equivalent to the annual energy consumption of 101,093 households. In addition, clean technologies such as wind energy require no water for electricity production, whereas fossil-fuel-fired generation is typically water intensive.

According to the MIA, the Project will not be constructed in areas with sensitive natural resources, and a set of mitigation measures included in the MIA will be implemented to minimize any negative impacts to wildlife and water resources.

#### 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 LAERFTE, 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 negative transboundary impacts are anticipated as a result of the development of the wind energy project. 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 General Cepeda in the state of Coahuila and the region. During construction, the Project is expected to generate more than 150 direct jobs, while 15 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

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and services. Personnel for construction would be drawn from local populations to the extent feasible.

#### 2.3. FINANCIAL CRITERIA

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 structures normally used 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 Power Supply Agreement (PSA) signed by the Project Company, Eólica de Coahuila, S.A. de C.V. and the off-taker, Industrias Peñoles, S.A.B. de C.V. NADB will have no recourse beyond the Project Company.

The revenue from the sale of electricity generated by the Project 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 Eólica de Coahuila, S.A. de C.V. has the legal authority to contract financing and pledge its revenue for the payment of financial obligations. Moreover, it has the legal and financial capacity to operate and maintain the Project given the experience of its development team. Moreover, Eólica de Coahuila, S.A. de C.V. will outsource the O&M services to 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 up to \$95 million dollars to the Eólica de Coahuila, S.A. de C.V. for the construction of the Project.

#### 3. PUBLIC ACCESS TO INFORMATION

#### 3.1. PUBLIC CONSULTATION

BECC released the Draft Project Certification and Financing Proposal for a 30-day public comment period beginning August 7, 2015. The following documentation is available upon request:

• Manifestación de Impacto Ambiental, Moda

At the request of a local resident, in January 2015, a hard copy of the MIA was made available for public consultation at SEMARNAT's local offices. No additional comments or requests were received as a result of the public consultation. Detailed information of these activities can be found in the MIA Resolution.

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 *Vanguardia, Revista Eólica y del Vehículo Eléctrico, El Financiero, Milenio* and *Business Intelligence*. The articles highlight the interest of investors to develop other wind projects in the state. Examples of these articles can be found at the following links:

- <u>Vanquardia</u> (December 24, 2014) "Tardará 2.3 años la construcción de parque eólico en General Cepeda" (Construction of the wind farm in General Cepeda to take 2.3 years) http://www.vanguardia.com.mx/tardara23anoslaconstrucciondeparqueeolicoengeneral cepeda-2232454.html
- <u>Revista Eólica y del Vehículo Eléctrico</u> (February 25, 2015) "Eólica en México: Parque eólico de EDPR con 90 aerogeneradores en Coahuila" (Wind energy in Mexico: EDPR wind farm with 90 turbines in Coahuila)
   http://www.evwind.com/2015/02/25/eolica-en-mexico-parque-eolico-de-edpr-con-90-aerogeneradores-en-coahuila/
- <u>El Financiero</u> (April 28, 2014) "Peñoles construirá parque eólico con EDPR; será para autoabastecimiento" (Peñoles to build wind farm with EDPR for self-supply) http://www.elfinanciero.com.mx/empresas/penoles-firma-acuerdo-para-abasto-energetico-por-25-anos.html
- <u>Milenio</u> (October 10, 2013) "Peñoles anuncia el primer parque eólico para Coahuila" (Peñoles announces the first wind farm in Coahuila) http://www.milenio.com/negocios/Penoles-anuncia-primer-eolico-Coahuila\_0\_173982861.html
- <u>Business Intelligence</u> (September 1, 2014) "Energía de Portugal (EDP) construirá parque eólico en el estado de Coahuila, México" (Energia de Portugal (EDP) to build wind farm in Coahuila, Mexico)
   https://www.bilatam.com/es/news-alert/energia-de-portugal-edp-construira-parque-eolico-en-el-estado-de-coahuila-mexico/

The articles reviewed for the Project are mostly informative and describe the characteristics of the Project. Opposition to the Project was not detected from the available media coverage.

Since the beginning of the Project planning process, the Sponsor has encouraged stakeholder engagement by promoting meetings to present the Project and looking for opportunities for community development. In addition, the Sponsor has followed all public consultation requirements in order to comply with applicable environmental clearance and permitting processes.