ZOFNASS PROGRAM
FOR SUSTAINABLE INFRASTRUCTURE
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DOMINICA I AND II – MÉXICO

Figure 1: General view of the project
Sources: Enel Green Power, "Evidencia Fotográfica [Photographic Evidence]"

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

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EXECUTIVE SUMMARY

This report evaluates the Dominica I and II Wind Farm, located in northeastern Mexico, on its social, environmental, and economic benefits, based on the Envision methodology. The project combines delicate care of the region's fauna and flora with a combination of equitable programs, showing innovative ways in which a wind farm can transform communities through its overarching sets of context-driven community plans. Sustainability goals are achieved in all areas, including material usage, energy, water, and other key areas.

Dominica I and II Wind Farm is located in a desert region, where droughts characterize the landscape as well as its geological features. Sloped hills combine with flat land, the sloped parts making installation of the wind farm a challenge; but the wind farm has reached its goal of adding a new source of renewable energy to the national grid, saving 337,236 tones of CO_2 per year that would have been produced by conventional generation. The program identifies when its sustainability practices match the country's overall regulations and when there is a potential conflict, both of which are carefully documented. Among the project strategies we can find the relocation of flora and fauna while enabling a domino effect of socially centered programs, designed to spark change in northeastern Mexico near San Luis Potosí. The program's combined human-centered programs and protective ecological relocation programs set it apart.

The Dominica wind farm used stakeholder engagement and community outreach efforts throughout the preliminary phases of the project. This has helped to enhance the lives of the residents from a mining town near the present-day wind farm. One particularly interesting project was the wind farm's registration of a charitable foundation, whereby a set of funds were allocated as an act of corporate social responsibility (CSR) in order to continuously develop stakeholder alignment and public-private partnerships that meet community needs. Another set of sustainability programs uses agricultural recuperation of local food and plants as a way to develop the local economy. Through this project, seven ejidos and 20 families were given capacity training to increase productivity and taught methods to develop their own businesses or increase efficiency in the ones they already have. The project's social aspects are being addressed with new infrastructure at the nearby schools, and the capacity-building program stimulates new forms of social activities in the communities. The project provided excellent leadership, identifying key stakeholders in the installation of Dominica I and II Wind Farm. As a result, the project management team met with seven ejidos, a cultural and natural protected area 10 km away, 20 private landowners, and the Wirikurta indigenous community.

The indigenous groups were able to integrate their priorities in terms of natural landscape and community assets. Following the initial set of meetings with the community, the project team

created a project plan to restore the plants disturbed by the project in a detailed manner, analyzing their position in relation to shade and sunlight and in terms of the ecosystem from which they originate. This is one of the most ingenious ways the project excelled. Monitoring was an area that performed well. The project manager created a set of long-term monitoring plans to ensure frequent maintenance on the equipment and materials of the wind farm, with annual maintenance as well as monitoring for all the turbines performed by two contacted technicians, with best-practice-style check-in-the-box monitoring sheets filled out and archived. Nothing outside of the ordinary was shown, but an outstanding attention and transparency in all its procedures amounted to an excellent performance.

The assembling of the project's installations is all conducted on site; all transport, assemblage, commissioning, and administration are conducted through an international contractor called Gamesa. The project should include a percentage of materials manufactured locally. The construction phase relies on national contractors; Gamesa technical monitoring and maintenance are of international origin. Insurance for the various potential hazards and employees' health insurance are not specified. Gamesa, a supplier for the wind farm's turbines, works with other manufacturers of the gearboxes, generators, and convertors to assemble the wind turbine. In order to score higher, a life cycle analysis of the wind farm's products with information pertaining to their raw material extraction is recommended.

The site is in an area that is dry; one potential contribution would be enabling the renovation of the watershed as part of the project's CSR programs. The administration of the project is essentially managed locally, with maintenance and monitoring being delivered ad hoc through the Gamesa contract. The local project is enhanced through its community programs, which is a great first step toward creating an independent economy through capacity building in Mexico, while utilizing national social capital to advance the country's labor force. Ecologically, replanting the flora and restoring habitat for the fauna allows the ecological life cycle to continue. These programs are evaluated and monitored. Specifically, the relocation of flora identified 16,891 specimens that were removed to nearby habitat to protect them from damage. This initiative will save these cacti, thus helping to maintain the culture and landscape of the area. The project has also set up a foundation (charity NGO) to allocate funds for CSR and upgrade the two nearby schools with new infrastructure for their civic auditoriums. Collaboration with indigenous groups was also established to examine their priorities in terms of the natural landscape and community assets.

While the Project Design Document identifies water as a negligible component, the environmental strategic design includes contingency systems for the drainage of water, the disposal of liquids separately from waste, and the overall design to avoid contamination. In these cases, the risk associated with water goes beyond a "check-in-the-box" mentality in

applying rigorous safety and hazard controls in the plant; it is essential for wind farms to preserve balances in order to protect the larger ecosystem. While Dominica's site location is far removed from large water bodies as an important geological variable, the water scarcity in this region of Mexico makes it paramount to include a more comprehensive view of the water resource as one that *is* scarce. All man-made physical constructions have an overall effect on a natural environment.

Possible improvements include developing synergetic systems that would involve more coordination between supply chain mechanisms, finding opportunities in the local community, and enhancing the connections between these. In topics where the wind farm scored high, like community programming, it go further, for example, to improve the community water supply. The ripple effects are bountiful and affect a place and environment longer than the life of its contract. In this case, the wind farm has developed positive community relationships; it is not just a renewable energy project but a green farming and community development opportunity for the people surrounding it. These efforts make the medium-scale wind farm a leader in equity and natural considerations. It is recommended that the project develop a life cycle analysis, which would develop an even broader set of positive effects and offer further perspective on the concept of sustainable improvement.

Figure 2: People & Leadership award Summary of results

Figure 3: Climate & Environment award Summary of results

Figure 4: Infrastructure 360 award Summary of results