

wind

Brazilian Wind Farms Produce More than Megawatts

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By definition, every form of renewable energy offers environmental benefits. Whether for solar, wind, geothermal, or any of the many other renewable sources, there is no extraction process and no carbon release into the atmosphere beyond the initial construction process. However, each renewable energy source has a distinct environmental profile, impact on the location's community, and footprint. When considered against these factors, wind energy may be the least impactful and the most beneficial type of renewable source available today.



Courtesy of NREL

"Like all renewable energy projects, wind farms emit no CO₂ beyond the initial manufacturing construction process," says Marcelo Herrmann, director of operations for Hill International's Brazilian operations, where the company is managing several wind farm projects. "But wind also has several other environmental advantages beyond the absence of greenhouse gas emissions."

Herrmann explains that unlike solar farms, for example, wind farms are relatively unobtrusive and complete. Farmers can continue to plant their crops and ranchers can graze livestock within the footprint of wind farms, for example. "There is significantly less environmental impact both before and after construction with wind farms," says Herrmann. "Solar farms require a large footprint, geothermal needs a cooling tower and condenser facilities, and obviously hydroelectric needs some kind of dam and a reservoir built. With wind farms, there is only the turbines, capturing the power of the wind."

According to Herrmann, the construction process for wind farms is also less invasive than other types of renewables.

These advantages are all on display at the Folha Larga do Sul Wind Complex, owned by Casa Dos Ventos, one of the leading developers of wind power projects in Brazil. Hill, with partner L&M Engineering, is providing project management support for the project, which will ultimately have a total installed capacity of 152 MW, composed of 36 x 4.2 MW wind power generators, each with a height of 105 meters, a 160 MW substation 34.5/230 KV, a 50 km transmission line, all connected to the national system through an existing substation.

The complex is located near the municipality of Campo Formoso, State of Bahia, which, like most wind power project locations, is relatively rural. Herrmann points out, this remoteness provides another advantage of wind power: training and jobs for the local population. "The project generates income for the community and improves the quality of life of the land owners, both large and small, who lease their land for tower placement. Both through the immediate jobs the project creates and through the training offered," says Herrmann.

The project process itself also involves several steps to protect the local environment. Herrmann says a key part of the Hill team's work on the project making sure construction itself has only a minimal impact on the communities where the work takes place. "We consider the residents of the project as stakeholders. Yes, they have agreed to the inconvenience of a major construction project on their land. But we are sensitive to their concerns regarding noise, dust, and other disturbances, and make sure the contractor follows the prescribed plans for staging and logistics, deliveries, and other items."

Herrmann says this also applies to the project schedule. "As much as possible, we take into account planting and harvest times, which are critical to the area's economy. These events are worked into the project schedule, further reducing our impact. Certainly all types of construction projects should take steps to plan work around major community and local events, but I like to think we go the extra step for our clients and our projects."

"In the end, our work is about protecting Casa Dos Ventos from the myriad of risks a project of this type can experience. We work with the entire team to help ensure risk and opportunities are weighed and measured before work begins, from schedule slippage due to local conditions to long-range economic and political risks. This all helps to make certain the project delivered is the project Casa Dos Ventos intended."

Currently, Hill is managing the construction of 24 wind farms in Brazil, totaling approximately 660 MW with 186 wind turbines installed in the States of Rio Grande do Sul and Rio Grande do Norte. At Folha Larga do Sul, work on the 23km of access roads to allow delivery of the turbine components is underway, as are the foundations for the turbines. Final completion and commissioning is scheduled for July 2020.

"By my calculations, Hill has helped to build nearly one-third of all the wind energy projects in Brazil," says Herrmann. "Folha Larga do Sul exemplifies our approach to these projects: careful planning, emphasizing teamwork, and looking for challenges proactively, before they can impact budget or schedule. This is the key service we provide to all of our clients, on all of our projects."

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