



## MINING COMPANY CREATES RENEWABLE ENERGY COMPANY: WINDIGA CASE STUDY

Windiga Energy, a Montreal-based, independent power producer focusing on renewable generation for West Africa, takes its name from the word for “sun” in one of the many dialects spoken in Burkina Faso. Unlike most renewable companies, Windiga started off as part of a mining company-- in this case, SEMAFO, a Canadian gold mining company focusing on West Africa-- before being spun off into its own entity in May 2013. Although the company will sell solar and other forms of renewable energy to major utilities, its beginnings at SEMAFO afford the executive team unusual insights into the energy needs of the mining industry, says Ugo Landry-Tolszczuk, director of operations.

“Most mining companies in our region rely on diesel to produce electricity,” he explains. Because diesel in West Africa costs around 30 cents a kilowatt hour, solar power can be an attractive (read: cheaper) alternative. In fact, Windiga was founded when Blaise Compaoré, the president of Burkina Faso, asked Benoit La Salle, SEMAFO’s CEO, for assistance in solving the national challenge of relying too heavily on diesel generators and unreliable energy imports.

“Mining companies want to get connected to the grid,” says Landry-Tolszczuk. Windiga, which is producing renewable energy for the grid, is therefore part of the overall solution. “Our business is good for the mining companies in terms of ensuring availability of energy, and it’s good for the utilities because they can increase their overall energy capacity.”

He observes that for many mining companies, the challenge of obtaining the electricity necessary to power operations is a distraction from their main business pursuits. “The job of the mining companies is to get ore out of the ground as cheap as they can. They’re not too bothered by how or why or when they’re generating electricity. What they care about is: What does it cost? And does it always work?” he says.

Landry-Tolszczuk notes that not only can solar power and other forms of renewable energy lower a mine’s total energy bill, but the payback period can be as little as a few years. As an added bonus, mines using renewables can boast about partaking of green electricity for at least a portion of the energy they consume.



## Three Works in Progress

Windiga Energy is actively working on three projects in Francophone Africa. First is a solar plant in Burkina Faso that will generate 20 megawatts of power; the power generated will be sold to the state-owned utility.

Windiga got its start in Burkina Faso by looking for ways to supply eight megawatts of energy to one of SEMAFO's gold mines. Leaders of the company soon realized that they could build a solar plant that would supply 20 megawatts of power and then sell that energy directly the state-owned utility in Burkino Faso, explains Landry-Tolszczuk.

Second, Windiga is developing a 15 MW waste-to-energy plant in Nouakchott, the capital of Mauritania. Mauritania and other African countries need alternative power sources as well as more efficient ways to manage a mounting municipal solid waste problem. "If you visit cities in Africa right now, or if you've seen pictures, there's a lot of garbage everywhere," explains Landry-Tolszczuk. Rather than dumping garbage in landfills-- a problem in Mauritania because the water tables are near the surface and effluents could enter the water system through the soil-- Windiga is building a plant that will use the municipal solid waste as feedstock to generate electricity.

Third, Windiga is launching a biomass project in rural regions of Burkina Faso. Here, the plan is to work with the many farmers of the region and transform their ways of farming. Today much of the land is farmed for sustenance with very low-yield crops. Windiga will work with the locals to increase current crop yields and use a portion of their land to grow bamboo. Windiga will pay these farmers for their bamboo, creating a revenue crop.

Windiga will take the bamboo and generate energy that can be fed into the local grid using a gasifying technology. This will greatly reduce the costs of generating electricity in rural areas.

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## The Big Picture

Too often, says Landry-Tolszczuk, mines are hammered for making large profits at the detriment of the local population. “Now,” he explains, “Windiga can say, ‘With biomass, we’re generating huge bamboo plantations, and putting people who just managed to subsist by growing food to work.’ At the same time, the mining company will be the main off-taker of electricity, and the excess can either be sold to the grid, or used for mini-grids for the villages.”

Going forward, Windiga is exploring other renewable energy projects in Burkina Faso, Mauritania, Ghana, and other countries of West Africa.

The company is currently focusing on Francophone Africa simply because there are so few players there. In fact, Landry-Tolszczuk says that apart from “the noise” created by business people without the means to launch an actual renewable project, there’s only one other serious independent power producer in Africa. “There are people trying to do things, but we’re different in that we have the resources and the know-how,” he says.

Practical concerns are typically what prevent more renewable projects from getting off the ground. “Everyone wants renewable energy in theory,” says Landry-Tolszczuk. “If you speak to any Minister of Energy in Africa or any state-owned utility, they’ll tell you, ‘This is definitely a priority for us.’ But when you lay out what it costs, this is what it can do, and this is what we have to do, then they say ‘yes,’ but you don’t hear back from them.”

Although renewable energy sounds appealing, the true test is economics. “The goal is to stop burning diesel because it costs too much,” he says, “and that’s what mining companies really care about.” He emphasizes that with oil prices predicted to soar to \$210 a barrel by 2035, mining companies and utilities know they need to seek alternatives.

In the next three-to-five years, Landry-Tolszczuk believes that renewables will gain wider acceptance in Africa and elsewhere. “More and more, mines are starting to integrate renewables into their energy solutions,” he concludes. “This has nothing to do with climate change, and everything to do with economics.”