

Madagascar microgrid control

The sharing of food has brought people together since the dawn of time. It is how we make friends and...do business. Romain de Villeneuve and Antonin Calzarossa met for the first time on Lagos Lagoon in Nigeria to discuss business opportunities in the country around Romain's dining table and in front of a tender, flavour-packed grilled barracuda with lemon zest.

A few years later, Villeneuve became chief executive officer of the newly created mini-grid company WeLight. Based in Madagascar, the small start-up had an ambitious target: to bring clean, cheap energy to the country's isolated villages. This required time, energy and resources. So Villeneuve remembered the "very gentle and capable" European Investment Bank loan officer, Calzarossa.

Solar mini-grids could be the most cost-effective option for rural electrification of many villages in Madagascar. "WeLight showed a proactive and hands-on approach from the start," says Calzarossa, who works for EIB Global, the European Investment Bank's arm for operations outside the European Union. "They managed to get projects off the ground in remote areas where many others had failed."

In 2022 the European Investment Bank loaned EUR10 million in WeLight's EUR28 million project to build and develop solar mini-grids in over 120 rural Madagascar villages. The EU-funded impact investment facility ElectriFI and Triodos, a financial expert in the energy industry for Africa, partnered with the EU bank to raise EUR19 million.

Madagascar is a large island rich in natural resources, but it's one of the poorest countries in the world. Only 15% of its rural population have access to electricity. Extending the grid is not financially viable and not likely to happen in the medium term.

Most rural households use kerosene, wood and charcoal for cooking and heating. Household air pollution caused by dirty fuels is particularly dangerous for women, who often spend most of their time in and around the home.

Some people can afford to buy diesel generators to run electrically powered machines, tools and appliances, and irrigation pumps. Other solar home systems are mainly designed just to provide basic power for lighting and phone charging.

WeLight's system is more powerful. Powered by renewable energy, the mini-grids set up by WeLight provide residents in off-grid rural villages with access to clean, affordable and reliable energy, at work and at home. That's true even after dark, because the WeLight system includes a battery that's charged during the daylight.

WeLight was founded in 2019 by Axian, a pan-African group mainly operating in telecoms, and Sagemcom, a



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French high-tech company specializing broadband communications. Norfund, Norway's sovereign development bank, also entered the business at an early stage.

Mini-grids are small distribution networks installed in rural villages outside the central grid. They are supplied by a dedicated electricity generation unit. In WeLight's case, a green mini-grid, powered by a PV-battery system with limited conventional power back-up, supplies electricity 24 hours a day, seven days a week.

The solar power plant installed by WeLight generates electricity during the day and provides enough excess electricity to charge its batteries, which take over at night. Using smart meters installed in private homes, residents can buy their electricity by prepaying directly with their phone through mobile money apps.

WeLight offers free connection to community buildings (town halls, health centres, schools, police stations) and public lighting. These light up isolated villages, improve safety, and enable activities after dark. "People can move around the village and stay up at night without worries," says a 58-year resident in Tsarabaria, a village in northern Madagascar.

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