# Mali microgrid operation

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Fetching water from distant sources is a common practice in many villages in rural Africa. Niagalen Konaté is no stranger to this as she had to collect water from faraway places to irrigate her garden. But with the newly installed solar water pump, she is now able to avoid this strenuous errand. “The use of the faucet has greatly reduced water chores and increased our productivity,” she says.

Solar water pumps are reducing a sizeable burden for the women of rural Mali. Through improved access to water that requires much less labour, those who make their living from farming and gardening like Niagalen are now able to increase their crop yield and generate better income. “Thanks to the abundance of water, we produce more and earn more. We sell some of our produce and use the money to improve the quality of our meals,” Niagelen adds.

Mali’s current rural electrification strategy relies on decentralised diesel-powered mini-grids. However, there is an increased effort to decarbonise them. The 4-Megawatt project supported by IRENA/ADFD facility in Mali is leveraging the existing infrastructure by converting diesel mini-grids to hybrid solar systems and extending it to benefit more communities with improved energy access. While avoiding 5000 tCO2e per year, the solar mini-grids also compliments the Malian government’s objective to combat poverty through sustainable development.

While more than 83 per cent of Mali’s population are still lacking energy access, the country has considerable potential to scale up clean energy access through solar power. Southwestern Mali alone has 53 Gigawatt of solar potential, enough to meet the whole country’s power demand.

For the latest assessment on Africa’s pathway to sustainable, inclusive development rooted in the energy transition, please read IRENA’s report developed with the African Development Bank: Renewable Energy Market Analysis: Africa and its Regions.

In Mali, 75% of people living in rural areas do not have access to electricity. Foundation Rural Energy Services (FRES) provides villages with electricity via solar-powered mini-grids. Mini-grids offer multiple opportunities for local entrepreneurs, organisations and the community. SDG 7 Results supports FRES via a results-based financing (RBF) subsidy. Djibril S?m?ga, Managing Director of FRES MALI, tells us more.

"Sometimes, one of our mini-grids gets connected to the national grid. In such a case, the solar panels are no longer needed, and we can reuse them to generate extra power in other mini-grids. This means we can connect households further away. Normally, that is not profitable due to the long electricity lines needed. But, thanks to the RBF subsidy from SDG 7 Results and the reused solar panels, we can do it."

"Mini-grids make production work, such as baking bread, much easier and more efficient. This has enabled

local businesses to generate more income. Now, administrative tasks that require energy-consuming devices can also be carried out in the village. Mini-grids also make household tasks easier and light households, allowing children to study after dark."

"Besides reducing the time needed for household chores with mini-grids, we empower women via various activities. For example, we have developed solar-powered water pumps for women-run cooperatives. We give women the chance to manage a water pump. After training, they help other cooperatives benefit from the advantages of the pumping system. We also support women in their agricultural activities, helping them choose profitable crops to sell and advising them on how to manage their income."

"From 2006 to 2023, our mini-grids provided electricity to 14 villages and almost 9,600 households. In the future, we hope to reach even more households with SDG 7 Results" support. We remain committed to developing new applications for sustainable and affordable power, especially in villages where this is difficult to achieve."

This first phase of the project will promote rural electrification through isolated solar photovoltaic (PV) green mini-grid systems as a low-carbon and resilient solution to the effects of climate change in the energy sector of Mali.

"Solar forecasting allows for significant cost savings through improved power reliability for largescale off-grid projects. At Reuniwatt, we have a decade of experience with industrial-grade solar forecasting. Solar and battery storage hybrid projects are the future of energy supply for remote sites, as they allow operations to become cheaper and more sustainable. We are proud to bring in our experience and work together with our prestigious partners on this first-of-its-kind installation in southwest Mali" explains Nicolas Schmutz, CEO of Reuniwatt.

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