Kuala lumpur florida microgrids

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The Eakon Group of Companies operates in construction (MEP and ACMV-R), Renewable Energy (Solar Solutions), education (Technical Vocational Academy), and Agriculture Durian trading. This diverse focus enables the group to drive industry impact and support sustainable development.

The building is the control center for a small, two-year-old power-generating facility that provides electricity to the approximately 200 people in the village. Computers manage power coming from the solar panels and from diesel generators, storing some of it in large lead-acid batteries and dispatching the rest to meet the growing local demand. Before the tiny plant was installed, the village had no access to reliable electricity, though a few families had small diesel generators. Now all the residents have virtually unlimited power 24 hours a day.

Optimal Power Solutions (OPS), the Australian company that designed the microgrid at Batu Laut, is doubling its installations this year throughout Southeast Asia and India. And several other companies, including industrial giants like GE and ABB, are developing and selling similar technology (see "Microgrid Keeps the Power Local, Cheap, and Reliable").

The reality, however, is far more complicated. Some early microgrids have run into problems, and the electricity they provide is more expensive than that from central power grids in the city--in some cases nearly 10 times as expensive. The technology involved in microgrids, and the systems used to operate and maintain them, will need to improve significantly if they are to bring reliable power to hundreds of millions of people.

"The forecast by the International Energy Agency and other groups is that in 20 years, we"ll still have a billion and a half people without electricity," says -Daniel Kammen, a professor of energy at the University of California, Berkeley, and an advisor for the United Nations" Sustainable Energy for All program. "Microgrids provide an opportunity to think about a really new model of how to bring energy services to off-grid communities. The question is, will this just be a cute development thing? Or will it become part of mainstream economics?"

Delivering that energy will require some alternative to the conventional grid technology: the IEA estimates that more than two-thirds of rural dwellers who lack electricity today will need power from some sort of distributed source, either microgrids or stand-alone power systems for individual households, because they are far away from the grid or live in a geographically inaccessible area (see "In the Developing World, Solar Is Cheaper than Fossil Fuels").

Baba says the government is likely to meet its goal of bringing electricity to 95 percent of the population in Malaysian Borneo by the end of the year (at the start of the project two years ago, 25 percent of that population had no electricity). The technology"s success so far has led the government to up the ante. In a bid

to bring power to even harder-to-reach areas and electrify 99 percent of Malaysian Borneo, it"s planning to increase microgrid installations by 2015.

Located in a remote part of northeast Borneo, not far from a deep, cliff-obscured basin that wasn"t discovered by outsiders until the 1950s, the village of Kalabakan had no proper paved road until a few years ago, and residents made do with a couple of hours of electricity at night. Three years ago, the Malaysian government funded a microgrid there, and power demand skyrocketed; new customers include a pair of sawmills that service the local logging industry. Unlike its slightly newer counterpart in Batu Laut, however, the microgrid in Kalabakan is already returning to the jungle.

Worse, half the microgrid isn"t even getting power. Because the output of its diesel generators wasn"t synchronized, only one generator can run at a time, and one can"t provide enough electricity to power both of the distribution networks that deliver electricity. Lutchman didn"t know about the problem because, days before, local workers had disconnected the data hub that was the only communication link between the microgrid and OPS. The workers were using it to surf the Web, something Lutchman learned about only when OPS got a large bill.

The trouble at Kalabakan reflects a deeper problem: there is no practical model in place for maintaining and operating a microgrid. The government pays for the system; companies such as OPS design it, install it, and keep it working during a two-year warranty period; and then, in the case of Malaysia, they turn over control to the local utility, which is what happened at Kalabakan. While OPS still monitors the microgrids it has installed, after the first two years it is no longer paid to maintain them.

Unlike its slightly newer counterpart in Batu Laut, the microgrid in Kalabakan is already returning to the jungle. Tropical growth is nearly as high as one solar array; in one place it is starting to block the sun.

The World Bank recently issued a report that warns of some of the challenges. Pepukaye Bardouille, a senior operations officer at the agency"s International Finance Corporation, says her group is "excited" about microgrids, but they"re "trying to inject a dose of realism." Bardouille explains, "What tends to happen is a few examples are touted as a solution on the basis of technology or just cost. But ways to deliver the technology and maintain it are actually so much a part of the solution that if those things aren"t dealt with, it"s just not sustainable."