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Off-grid power tech targets telecom towers in LatAm

By Wallace Porter - Monday, September 26, 2016

Seattle-based company Planetary Power designed a small, hybrid power generator that could change the way electric power is purchased for telecom towers in hard-to-reach places. BNamericas talked to Joe Landon, president and CEO, and Kurt Armbruster, COO, about the company's HyGen technology and its intelligent control system, as well as the opportunities they see in Latin America and the Caribbean. (The interview was originally published in BNamericas' IT/Telecom sector*.)*

Joe Landon
President and CEO
Planetary Power

BNamericas: What drove the creation of Planetary Power?

Landon: The company was created to explore technologies in renewable energy. Energy is one of the big opportunities and challenges in the future, but at the time renewable energy was not living up to its whole potential. Traditional renewable energy technologies were focused on grid-type power, and efficiency wasn't high. We thought there could be a better way to approach renewable energy.

Our company then worked with the US Navy on developing hybrid energy for off-grid power, and that's how we first got into that market with the HyGen hybrid technology. Later we went on to do custom solutions for the US government, the NASA space program and other commercial private customers. Within the last year and a half we entered off-grid energy for the telecom market.

BNamericas: Tell us specifics about the HyGen hybrid power-generation system?

Armbruster: HyGen is a small diesel engine with a battery bank and a control system that ties it all together, but it also has inputs for solar, wind or any type of energy or combination of renewables.

The technology allows us to decouple the load from the source, so we use variable sources that come on and off by storing power within the hybrid system. Then we can meter it out as consumers need it. Our first choice in recharging batteries is renewables, but in any given situation, the diesel engine can kick in.

We're trying to establish a 'set it and forget it' model, so our generators will run for 45 days on a typical load of 2kW. Users need to refuel only once every 45 days and service the unit every three months. These timeframes help reduce the costs of energy and logistical support, enabling energy as a service.

Furthermore, the units are intentionally designed to be difficult to break into. The most efficient generator in the world isn't valuable if the fuel gets stolen.

BNamericas: What does the generator's intelligent system consist of?

Armbruster: We developed the control system in Seattle with a highly qualified team. Most of us have worked in high-technology and applying it in the developing world. Several of our employees have worked for Microsoft, for example.

Firstly, there's a control system which provides constant voltage output and can vary it according to the required load. A second system monitors the battery levels. The goal is to make sure battery levels never get too low. Then we have a control management system that switches the different power sources on and off, as needed.

Overall, it's a three-phase control system that works on the output, battery management and power generation control system.

The unit is locally controlled, but it has a management system connected to the cloud. The system monitors and controls its own power as needed, but it continuously reports variables to the cloud so that we can monitor from our network operating center or a central site for the telecom client.

We look at some 25 variables, including engine temperature, battery condition, power in and out, among others. We can monitor all of these through a website and our mobile app.

Our company can provide equipment supervision as a service, including providing performance reports, although sometimes operators like to do this themselves.

BNamericas: What caught your attention about the telecom sector?

Landon: Energy generated outside a power plant or power grid is a multi-trillion dollar market. Therefore, we looked at all the markets where off-grid energy is large, such as mining, military and oil and gas, and even events.

After an exhaustive analysis, we realized telecom was the most attractive opportunity and the one that fitted best with our technology. The telecom market is growing rapidly and the growth is in areas where the power grid isn't sufficiently efficient.

In addition, telecom towers are homogeneous in terms of power needs. As a first entry into the market, we could cover almost the whole telecom tower market with just one model. Conversely, other sectors require an entire model line.

BNamericas: Why did you decide to enter the Latin American telecom market?

Landon: We took a systematic approach to identify the opportunities in terms of towers. Africa is one of the largest markets for off-grid energy and telecom growth, but Latin America and the Caribbean is up there as well. Although there are more off-grid towers in Africa, there are more bad-grid towers in Latin America and the Caribbean.

Additionally, the region provides many advantages, as we are based in Seattle and long-term manufacturing will likely be done in Guadalajara, Mexico.

Our first project in the region will launch in Honduras this fall. We aren't working directly with the network operator, but with the energy service company supplying power to two different operators in this country.

We think that is going to be a common theme, since we see both tower companies and operators prefer paying for an electricity service bill than having to buy and maintain power generators.

BNamericas: What will be Planetary Power's next step to position itself in Latin America and the Caribbean?

Landon: Our first focus will be markets with high numbers of off-grid towers. The Caribbean is of particular interest to us, but we're talking to potential clients all across Latin America too.

Honduras, Guatemala and Nicaragua have a clear need for towers in rural areas. Additionally, sometimes there are mandates to expand coverage into rural areas, and the towers needed to provide said coverage wouldn't be economical without our system.

About the company

Based in Seattle, US, Planetary Power's vision is to make efficient and reliable energy accessible anywhere on the planet. The company's HyGen hybrid generator provides a cost-effective, sustainable and reliable alternative to conventional generators. The Planetary Power team comprises professionals with experience in business development, engineering, and prototyping in sectors such as informatics, telecom, and aerospace.