OutBack POWER™
an EnerSys® company

Venable Farm

GRID-TIED BATTERY BACKUP CASE STUDY

SYSTEM SPECIFICATIONS	
Location	Masaya, Nicaragua
System Power	4,050W solar power
Components	• Radian GS8048A inverter/charger • FLEXmax 80 charge controller • (8) NSB190FT BLUE+ batteries

OVERVIEW

Out on a farm in Nicaragua, the site was 8km from the nearest town and over an hour from the capital. The farm had been in the family for generations, raising a number of crops for personal use, selling the surplus and reforesting. Access is sometimes cut during heavy rains with an unreliable phone signal, and a lack of public water. However, with the help of an OutBack Power™ solar energy system installation, they live very comfortably.

CHALLENGE

- Unreliable grid, losing power for up to 12 hours at a time.
- Reliant on electricity for water, pumped from a deep well, as well as refrigerators and freezers for storage.
- Due to poor phone coverage, electricity is necessary for communication, powering an internet tower for phone calls and web access.

SOLUTION

- 15 solar modules were installed along with a charge controller and inverter to work with the current from the downhole pump and run it during the day when the sun is out. The battery bank provides two strings of four NorthStar® BLUE+ batteries.
- Water is pumped into a storage tank when the sun is strong, from which a smaller pump and pressure tank provide water to the house at night.
- During the dry season, water is pumped in the daytime to an irrigation tank on a hill, running it via gravity to drip irrigation in the late afternoon and early morning.
- With electricity at $0.25 per kwh, the system is expected to break even or provide a return over its lifespan.

OUTCOME

- Grid interruptions are no longer noticeable.
- The system provides electricity for water for domestic use and light irrigation, watering plants, sowing during dry spells and keeping the area around the house green and dust-free. There's even a pool with Tilapia for home consumption.
- Communication is available at any hour without interruption, as well as an internet connection.
- A few months after the system installation, civil unrest made it difficult to access supplies in the nearby towns or sell what was produced. The electricity provided by the system allowed for a second refrigerator and freezer; items were stored in the freezer that weren't able to make it to the market, and buy more supplies at once when they are in town.

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09/2020