



*brooke
associates*

Global Food Processor Increases Productivity by 25 Percent with Solar-Enabled WLAN for RFID

FAST FACTS:

Customer profile: A leading provider of over 100 lines of food products to wholesale and retail customers around the world.

Reach: The customer has a global operations presence in over 30 countries.

Industry: Food and Grocery

Challenge: The customer needed to increase productivity at its loading docks by extending the functionality of its existing RFID deployments all the way to the entrances/exits of each facility. The lack of utility power at these entrances/exits made it cost prohibitive to install WLAN radios at these locations.

Solution: For the pilot location, Brooke Associates designed and deployed a total solar solution to both house and power all of the necessary networking equipment without the need for costly trenching and installation of electrical utilities to the site.

CLIENT

A provider of over 100 lines of food products to wholesale and retail customers around the world. With fully-integrated operations, the customer ensures quality by controlling the end-to-end processes including the sourcing, growing, processing, distribution and marketing of all products.

CHALLENGE

To maximize efficient delivery and ensure the quality of their products, the customer tracks all of its food products via RFID as they are transported from the grower, packing facilities, processing plants and distribution centers. All trucks and food product containers are outfitted with RFID tags for tracking purposes, which are then read by wireless handheld devices as soon as they are within range of the WLAN at each facility. As RFID data is read, the data is uploaded to and reviewed by central servers that determine the destination and intended use for each product.

Though this ensures the accuracy of each delivery, the process of reading, uploading and reviewing RFID takes time, and did not start until the trucks reached the loading docks (where they were in range of the WLAN). This resulted in trucks sitting idle at the loading docks while the RFID information was processed, which hindered productivity at the loading docks.

To increase productivity at the loading docks, it was determined that the WLAN needed to be extended to the entrances/exits of each facility so that RFID information could be read and processed while the trucks were being weighed at the scales. This would provide a head-start on processing RFID data before the trucks reached the loading docks. The challenge, however, was that there was no utility power at the entrance/exit sites to power the WLAN equipment. The cost of trenching and installing utility power at each location was estimated at \$20,000 to \$53,000 per site, making it cost prohibitive to provide traditional cabled power.

Benefits at a Glance:

- Cost savings of \$20,000 to \$53,000 per site for power installation
- Productivity increase of 25 percent
- Year-round power source with no recurring energy costs

SOLUTION

Brooke Associates designed and deployed a total solar solution – requiring no traditional utility power – to power all of the necessary network equipment. The Brooke Associates solution also housed all of the equipment in NEMA 3R-rated enclosures, ensuring year round outdoor protection for the equipment against the elements, including rain, sleet, snow and external ice formation.

The Brooke Associates solution consisted of a battery, battery enclosure and flat-plate solar panels – all of which were ground mounted. The pilot deployment was located in the northern hemisphere, so the solar panels (or photovoltaic array) were tilted south to ensure maximum exposure to the sun year round, optimizing the amount of sunlight collected and converted into energy. The pilot site also had a minimum winter insolation (the amount of available sunlight per day) of 2 kWh/m²/day (2 kilowatt-hours per square meter per day). Even at this minimum insolation, the Brooke Associates solution was engineered to enable the system to remain up and running for up to three “black days”, or days when no sunlight was available to be converted to energy.

BENEFITS

Cost savings of \$20,000 to \$53,000 per site for power installation

Cost estimates for the trenching and installation of utility power to the entrance/exit sites at each facility ranged from \$20,000 to \$53,000 per site. With operations in over 30 countries worldwide, this represents a cost savings in the millions of dollars across all sites. Brooke Associates’ solution also represented a 50 percent cost savings over traditional utility power.

Productivity increase of 25 percent

By reading and processing the RFID data at the entrance gate as the delivery trucks were being weighed at the scales, the data was able to be processed before the trucks even reached the docks. This meant that the destination and purpose of each load was determined in advance, enabling loading dock workers to take appropriate action as soon as each truck arrived. On average, the Brookes Associate system reduced the average shipment receiving time by 30 minutes per load, which represents a 25 percent increase in productivity.

Year-round power source with no recurring energy costs

Brookes Associates custom engineered a total solar solution for the specific site. Brooke Associates took into consideration the year-round insolation rates to ensure that the solar solution could power the WLAN equipment regardless of the season or weather. And because it is a completely unwired, total solar solution, the customer faces no recurring energy costs.