

Project Name: Corn Farming Business - South Africa



Company: Elmorex Solar Solutions
Location: Free State, South Africa
Project Date: September, 2021
Main Contact: Werner Roux
 Installation Manager
Application: Agriculture
Customer Type: Commercial
Phocos Product: Any-Grid PSW-H Hybrid Inverter
Quantity: 6 Units

Conditions/ Challenges Before Installation

This farm owner purchased neighboring land to his existing farm to increase production yield. So, new irrigation was required for these 96 hectares of land. Initially, the farm owner contacted the municipal energy supplier to determine the cost and feasibility of a utility grid connection for the required irrigation system. The cost for a basic municipal connection totaled approximately \$45,000-\$50,000 USD. On top of that, there would be the monthly bill for the electricity used for the required irrigation, expected to easily reach approximately \$10,000 USD per month. These connection charges and monthly costs were too high, so alternative options were investigated.

Solution/ Results After Installation

The area is fed by natural water sources which collect in a small, man-made dam. Solar was the best financial solution, to create the electricity needed to pump water from the dam and run the irrigation system for the crops (primarily corn). The team from **Elmorex Solar Solutions** was able to design and install a cost-effective solution with the Phocos Any-Grid Hybrid Inverter Charger, to offer the farm owner a complete 3-phase system. This system includes a 15kW solar array (with room to grow to 30kW at a later date), and a battery backup (145kW lead acid), all at a cost of approximately 15% less than the originally proposed municipal grid connection. Beyond this savings, this is a solar solution so there will be no monthly usage charges, translating to massive savings for the client both on the initial installation and utility expenses over time.

This installation is in an extremely isolated location, so the security of the system components was a large concern, due to the high crime rate in the region. Elmorex came up with a creative solution for security by sinking a 40-foot shipping container (ventilated and airconditioned, to ensure adequate cooling and air flow) into the ground and installing the hybrid inverters, controls and battery bank inside the container. Then the PV array ground mounting structure, using anti-theft bolts, was secured to a concrete foundation which was laid on top of the buried container. This way, the container would not be visible, therefore the contents would not become a target for theft. Aside from making the installation very secure, burying the container reduced the overall footprint of the system by not using up valuable land that could be used to grow crops. The container being underground also keeps the system cooler and running more efficiently, which is critical in this area where above ground ambient temperatures can easily reach +40°C. The result is a winning combination of improved performance, added security, and an immense investment savings with renewable energy for this farmer to increase profits.

"We do installations for many different types of solar applications, on-grid & off-grid. We know that in any situation, we can rely on the flexibility and durability of the Phocos Any-Grid"

— Werner Roux, Installation Manager

15% Saving with Solar Investment vs. a Utility Connection

100% Avoided Monthly Utility Bills at ~ \$10,000/Month

Featured Product:



Any-Grid PSW-H-5kW-230/48V