

Yemen: Remote Home Off-Grid PV Power System for a Multi-Dwelling



“We chose Morningstar’s products because of their high reliability & operating life. Due to the political uncertainty of this region, doing any sort of maintenance service on these installations (post install) is not a realistic possibility.”

The Challenge:

- To provide remote & autonomous power to multi-dwelling homes in Yemen.
- Subject to sandstorms & dust storms, Yemen’s climate is arid and hot, prone to extremely high humidity (ranging from 35% to 64%) and high temperatures (ranging from 14°C to 22°C).

The Solution:

- A 100% Stand-alone Photovoltaic Installation using **two Morningstar TriStar MPPT™ 45A Charge Controllers & six SureSine™ Pure Sine Wave Inverters**, coupled with four 12V 230A batteries and two strings of three 200W PV arrays.
- The TriStar MPPT Controllers, with **Morningstar’s patented TrakStar™ tracking algorithm**, provide maximum energy harvest for this remote installation site—under all operating conditions. **The Industry’s Highest Peak Power Efficiency Rating: 99%.**
 - **“The TriStar MPPT Controllers will provide the ‘right high output and energy harvest, so the system can be used with less solar panels.’”**
- The **TriStar MPPT Controllers & SureSine Inverters** are **environmentally optimized and offer extensive weather protections**. Rated for an ambient operating temperature range of -40°C to +45°C, they are the **perfect choice for extreme weather installations**.
 - **“Yemen has a lot of dust problems, so using Morningstar’s ‘sealed’ SureSine inverters make these inverters the perfect choice for reliability.”**
- The **TriStar MPPT’s & SureSine’s robust thermal design** (with passive heatsink convection cooling) dissipates heat quickly—reducing the operating temperature of the controller as well as protecting the devices’ sensitive electronic components from dust, debris and sand particles—enabling **maximum reliability and a long operating life**.
 - And their **low self-consumption** means more autonomous power to power the base-station’s primary functions—household lighting, appliances & communication systems.

Photos Courtesy of Energy Holland.