



Case Study: Electric Bicycles

Billion Provides Smart Energy Management Solution to Off Grid Electric Bicycle Charging Station

Billion Electric plays the role of a system integrator and an innovative developer of smart energy management solution. In the Eco Power Station project, Billion Electric has worked with ten other leading Taiwanese green technology companies, which provide solar panels, batteries, inverters, and other equipment to build up a total self-sufficient electric bicycle station that runs on solar power. Assist the government's project to reduce CO2 emission by promoting sustainable and green technologies, Billion Electric not only designed a cloud-based energy management platform, but also integrated solar power generation, battery, and electric bicycle charging systems to form an off-grid electric bicycle station that did not consume any electricity from the power grid.

Location: Taiwan

Date: 2015

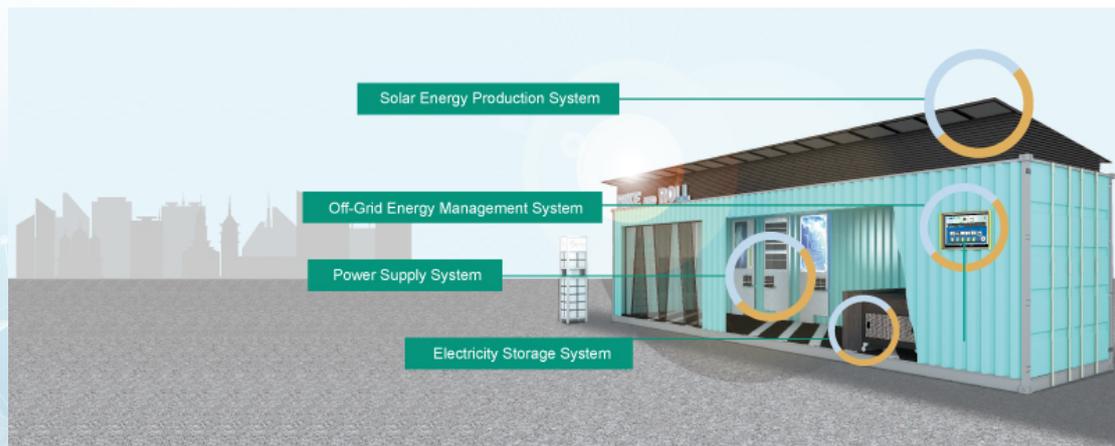
Our Solutions

The Eco Power Station is the central power plant built by a retrofitted 40-foot container house, operating as an off-grid energy management system deployed with solar power, electricity storage equipment, and electric bicycle power supply systems.

The Eco Power Station combined electricity production, power storage, power supply systems, and energy management into a unified platform for monitoring, analysis, control in response to a variety of situations for resource provision. This charging station generated

power from solar energy and delivered electricity to electric bicycles through the power supply units. The system automatically stored excessive energy in the battery and optimized electricity to ensure that solar power generation, electricity storage, and power supply system are seamlessly operating with each other. The Eco Power Station not only reduced the operator's labor maintenance costs, but also achieved the purpose of energy sustainability.

The power source of the Eco Power Off Grid Station is supplied by the solar panels mounted on its roof. The electricity generated by solar power is stored in a smart lithium battery through an AC / DC converting power supply, serving as the primary energy source for this charging station. The electricity can also be used for both lighting and routine maintenance. The second energy source comes from the energy storage equipment, which stores the excessive solar energy as fuel cells for power backup. Once the solar electricity production is insufficient to provide for power plants, the permeable fuel can be released as the secondary charging battery, making the Eco Power Station a completely independent power station.



Description:

- SG6200 smart gateway acts as the brain of this off-power grid station by analyzing and consumption data and uploading the information onto the cloud monitoring platform.
- Five SG3030 intelligent current control box controls the power input and output of individual electric bicycles and monitor their charging levels.
- The screen shows the explicit allocation of different energy resources to form a centralized management platform to oversee all electrical activities of this off-grid power station.

Benefits

Over last five years, Billion Electric provided the off-grid energy management solutions for different types of electricity generation systems, including solar power, wind power, and other fields of implementation, such as in remote areas, mining states, and urban base stations to help customers to promote all types of off-grid applications.

The Eco Power Station is different from the previous electric bicycle charging stations is because the station is independently run on solar power system, an off-grid energy management solution provided by Billion Electric. The idea successfully reaches the goal of "zero electricity generated by diesel fuel" and will save up 100% labor production cost, a substantial increase in the economic and energy efficiency.

In this case, one of the largest U.S. electric bicycle rental companies, Bike and Roll, is working with this group of innovative Taiwanese green technologies companies to provide electric bicycle and phone charging services to local tourists and offer cost-efficient bike leasing rate. The station will be available to the public in the Status of Liberty Park, New Jerseys from spring 2016