

## **PDEOZE PowerContainer**

# **Swedish solar energy intelligent control system**



## Overview

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Overview: An IoT-driven EMS in southern Sweden connects solar panels and battery storage via Milesight hardware and LoRaWAN, improving efficiency and reliability for a local energy provider. Can solar PV coupled to energy storage systems (PV-ESS) be integrated?

One promising option is the integration of solar PV coupled with energy storage systems (ESS). The aim on this project is to study the implementation and optimal operation of turnkey solutions involving solar PV coupled to energy storage systems (PV-ESS).

What is a solar PV system?

It is the system directly connected to the electricity grid. It consists of PV panels, one or more inverters, a distribution panel, an electric load, a meter, and an electricity network. The solar photovoltaic (SPV) cell converts solar energy into electrical energy. Electricity can be defined as the flow of electrons.

What is a regression model for solar power & battery SoC?

Through accurate predictions of energy generation, systems can be designed to handle fluctuations and have a more stable and reliable output. Regression models for solar output power and battery SOC have been built using MATLAB's ANN ToolBox, with the input values being measured daily.

How can an ANN control the energy management of PV systems?

The energy management of PV systems is an important issue when studying renewable energy. One of the methods to control this process is by using an ANN. ANN-based controllers are gaining popularity due to their ability to adapt to different scenarios and enhance energy conversion efficiency.

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