CASE STUDY

ELHAND Transformers at ZPUE S.A. Energy Storage Facilities

CLIENT

ZPUE S.A. is a recognized leader in the power and industrial sectors, having specialized for 35 years in the creation of advanced solutions for the power industry, such as container transformer stations, pole-mounted transformer stations, MV and LV switchgears, energy storage, and fast charging stations for electric vehicles

CHALLENGE

To maintain independence of power supply from the distribution grid and increase the efficiency of energy produced by the 1.3 MWp photovoltaic power plant, the Client decided to build a 1 MW energy storage facility with a capacity of 4.3 MWh.

The purpose of the energy storage facility is to store excess produced on sunny days and discharge it during times of increased demand by consumers and participate in electricity trading. Additionally, the energy storage will act as a power; in the event of a power failure on the distribution grid, it will form a micro-grid together with the PV system (off-grid operation of the storage).

The energy storage is built from an energy storage unit and a bidirectional AC/DC converter withconnection to medium voltage grid. One of the key components of the converter is the 15.75/0.39 kV isolation transformer, which integrates the grid system and output voltage from the IGBT converter.

SOLUTION

The ET3H 1250KVA 15.75/0.39 kV isolation transformer produced by Elhand was selected due to its flexibility in design and customization by engineers to meet the requirements of building a bidirectional AC/DC converter with integration into the medium voltage network. Additionally, the transformer's technology enables energy transmission in both directions, maintaining high energy efficiency even with rapidly changing loads.

EFFECTS

The use of the Elhand 125KVA transformer enabled the achievement of the following goals:

- **Increase in the share of renewable energy sources (RES)** – better utilization of energy from renewable sources to power the Client's facilities.
- **Energy independence** – enhancement of the Client's facility's energy independence.
- **Increased network stability** – due to the ability to quickly respond to changes in energy demand and production.
- **Reduction of energy losses** – optimization of energy flow and utilization throughout the entire infrastructure.

TRANSFORMER: 1250KVA 15,75/0,39 kV
PHOTO: ZPUE S.A.

> We have been collaborating with Elhand for almost 20 years. In this project, Elhand has once again proven to be a reliable supplier we can count on. In our mutual relationship, we value the speed of service, excellent technical support, and the ability to customize transformer designs to meet our needs. We are pleased to create pioneering solutions for the Polish power industry together, such as energy storage systems.
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