

# KSTAR Case Study POLAND

The Green Pump Paradox:  
A Petrol Station's Journey to  
Solar Dominance

with KSTAR BluePluse Energy Storage Solutions



## Background

In Poland's competitive fuel retail market, operational efficiency and energy cost management are critical success factors. ABC Chromna, a modern petrol station with an automated car wash facility in Chromna, partnered with KSTAR to enhance their power management capabilities. This case study explores how a 50kW/100kWh energy storage system transformed their energy utilization while improving operational reliability.

## Client Profile and Energy Challenges

The station's existing infrastructure included a photovoltaic system that frequently exported solar energy during periods of low financial return. Their sophisticated car wash equipment required stable power conditions to maintain optimal performance. The primary challenges centered around inefficient energy utilization and the need for more consistent power quality to support sensitive operational technology.

## Technical Solution Design

KSTAR implemented an integrated energy management solution featuring the KAC50DP inverter, BC100DE battery cabinet, and STS100D system controller. The system's advanced software continuously monitors energy flows, automatically storing surplus solar generation for later use during peak tariff periods. This intelligent energy routing ensures maximum utilization of renewable generation while maintaining perfect power conditions for all equipment.

## Project Implementation Process

The installation followed a carefully planned two-day schedule beginning June 26, 2025. KSTAR's team completed the physical installation on the first day, with system configuration and commissioning finalized on June 27. The rapid deployment leveraged pre-configured components and seamless integration with existing infrastructure, demonstrating KSTAR's efficient implementation methodology.

## Operational Improvements and Financial Benefits

Since implementation, the station has achieved significant improvements in energy management. The system now captures and utilizes 98% of solar generation on-site, compared to just 65% previously. This optimization has reduced energy costs by approximately 30% through better alignment of consumption with tariff structures. The consistent power quality has also improved equipment performance and reduced maintenance requirements for sensitive car wash systems.

## Customer Testimonial

*"The KSTAR system has revolutionized how we manage energy," reported the station manager. "We're now getting full value from our solar investment while enjoying perfectly stable power for all our operations. The financial benefits have exceeded our expectations, and the system requires virtually no intervention from our staff."*

## Conclusion and Broader Applications

This project demonstrates how intelligent energy storage solutions can create multiple value streams for retail fuel operations. Beyond immediate cost savings, the system provides ongoing operational benefits through enhanced power quality and automated energy optimization. The success at ABC Chromna provides a replicable model for similar businesses seeking to maximize their energy assets.

<b>Project Name :</b>	ABC Chromna Energy Optimization
<b>Country :</b>	Poland
<b>Year:</b>	2025
<b>Project Scale:</b>	50kW/100kWh Commercial ESS
<b>Product Used:</b>	1 × KAC50DP Inverter 1 × BC100DE Battery Cabinet 1 × STS100D System Controller
<b>Configuration:</b>	Parallel ESS with smart energy management
<b>Application:</b>	On-grid with storage system

