– COMSYS –

CASE STORY

Tackling power quality challenges with Comsys in a UK renewable energy facility

» LOCATION
UK

» INDUSTRY
Renewable Energy

» PARTNER
CP Automation

» TIMELINE
2024

BACKGROUND

A renewable energy plant in the UK embarked on a significant upgrade to improve operational reliability and efficiency. The project's primary objectives were to minimize harmonic noise caused by non-linear loads and establish a dependable backup power system. Both measures were essential to safeguard equipment, ensure compliance with power quality standards, and maintain continuous operations.

A leading control systems supplier secured the tender but recognized the need for specialized expertise to tackle these power quality challenges. To meet the plant's specific requirements, they partnered with CP Automation, our trusted partner in the UK, to deliver a tailored solution.

CHALLENGE

The plant's infrastructure included variable speed drives (VSDs) and transformers, which are common sources of harmonic distortion. Harmonic noise can reduce equipment performance, shorten the lifespan of components, and lead to inefficiencies in energy usage. The main challenge was to mitigate harmonic distortion to maintain power quality and meet compliance requirements. Additionally, the plant required a reliable backup power system to ensure that critical operations could continue without interruption during potential mains outages.

These challenges demanded an integrated solution to support the plant's operational and sustainability goals.

SOLUTION

CP Automation addressed these challenges with a tailored approach. To tackle harmonic distortion, six Comsys ADF P300 active harmonic filters were installed across the plant. These filters actively cancel out harmonic noise by injecting counter-signals, protecting transformers and ensuring the efficient operation of connected equipment. The filters improved the overall stability and reliability of the plant's power supply.

To ensure continuity of critical operations during power outages, CP Automation installed two uninterruptible power supply (UPS) systems. These systems provided instant backup power to essential processes, including fuel handling, conveyor systems, and boiler control units, ensuring that operations could continue uninterrupted even during unexpected mains disruptions.

RESULTS

The installation of Comsys ADF P300 filters and UPS systems delivered immediate and long-lasting benefits. Harmonic distortion levels were reduced to within acceptable limits, protecting the transformers and extending the lifespan of electrical equipment. This improvement in power quality also ensured compliance with industry standards. Meanwhile, the UPS systems safeguarded critical processes by providing seamless backup power, enhancing the plant's overall resilience and minimizing downtime.

By safeguarding equipment and ensuring uninterrupted operations, the project demonstrated how targeted power quality solutions can drive efficiency, lower maintenance costs, and support sustainable energy production. The plant is now well-equipped to maintain continuous energy flow, reinforcing its role as a reliable contributor to renewable energy generation.Long-term benefits include extended equipment lifespan, lower maintenance requirements, and reduced energy consumption. These improvements have significantly enhanced operational efficiency and delivered substantial cost savings for both facilities.

PRODUCT USED IN THIS CASE

ADF P300

- » HARMONIC ELIMINATION
- » DYNAMIC VAR COMPENSATION
- » LOAD BALANCING
- » MODULAR & SCALABLE DESIGN
- » FLICKER COMPENSATION
- » 208-690V NOMINAL VOLTAGE
- » CLOSED LOOP, OPEN LOOP & SENSORLESS CONTROL