

# Vacuum Circuit Breaker Renewals and Refurbishment



**Case Study:** VMAG 25kV Circuit Breaker Replacement on the East Coast Mainline

**Client:** Babcock Rail / Network Rail

**Project Partner:** WJ Project Services

**Location:** East Coast Mainline – York Area

**Scope:** VMAG 25kV circuit breaker installation, HV equipment testing, Level A/B switching, cross-boundary feeder commissioning



## Project Overview

WJ Project Services was commissioned to upgrade ageing high-voltage circuit breakers across key substations in the York area following deterioration of insulation levels within existing switchgear. The programme focused on improving system integrity, reliability, and long-term operational safety.

## Approach

Works included isolation and earthing activities, removal of legacy HVCBs, and installation of new HSS VMAG 25kV circuit breakers, through-wall bushings, voltage transformers, and isolators. Detailed switching schedules were developed to allow phased changeovers while maintaining alternate feeding arrangements.

## Commissioning & Training

Comprehensive testing was undertaken, including SCADA end-to-end verification, pressure and wiring tests, ductor testing, interlocking checks, function testing, and cross-boundary National Grid feeder testing. Entry into service procedures were completed in accordance with Network Rail standards

## Equipment

HSS VMAG 25kV vacuum circuit breakers and associated HV interface wiring infrastructure were installed, providing enhanced insulation performance, improved reliability, and modernised protection capability.

## Outcome

The project delivered fully renewed and commissioned HV circuit breaker systems, strengthening feeder station resilience and ensuring safe, reliable operation across the East Coast Mainline.

