

**Case Study:** HV Switchgear Replacement and Substation Bypass Commissioning

**Client:** First Engineering / Babcock Rail / Network Rail

**Project Partner:** WJ Project Services

**Location:** Essex, Kent, Surrey

**Scope:** In-service substation bypass, metal-clad switchgear replacement, auxiliary transformer upgrades, battery and LVAC system renewal



## **Project Overview**

WJ Project Services was commissioned to deliver a switchgear renewal programme across 14 HV substations within Network Rail's South East territory. The project replaced ageing GEC KC metal-clad switchgear with modern Areva WSA equipment to improve reliability, safety, and network outage availability.

## **Approach**

Works began with bypassing in-service substations to maintain operational continuity. Intertrip schemes and protection modifications were implemented to safeguard feeder zones during isolation. Existing switchgear was removed and replaced with new Areva WSA gas-insulated vacuum switchgear, with all feeder and protection interfaces reconnected and verified.

## **Commissioning & Training**

Auxiliary transformers, battery systems, and LVAC signalling supply panels were upgraded and commissioned. SCADA integration and supervisory testing were completed in accordance with Network Rail standards prior to switching the new installations into full service.

## **Equipment**

Areva WSA gas-insulated vacuum switchgear, upgraded auxiliary transformers, battery charger systems, and LVAC changeover panels were installed, providing enhanced reliability and increased power capacity.

## **Outcome**

The programme successfully delivered modernised HV substations with improved resilience, increased outage availability, and strengthened long-term operational performance across the South East network.