Leading provider of AC & DC Traction Power Distribution and Infrastructure Services
Founded in 1983 we have established an unrivalled reputation for quality and flexibility in all aspects of our projects.

We are providers of complete package services for the design, supply, construction, testing and commissioning of traction power systems and for the modification of operating systems.
Continuing our ongoing works on the East London Line, Antagrade were engaged to support the additional berthing requirements at Silwood depot to allow train capacity increases in line with the Mayor of London’s manifesto.

Tasked with installing and testing the traction power system upgrades our workscope included the installation, testing and commissioning of a new modular DC switchboard building and its integration into the existing substation at Canal Junction. As well as delivering the ETE works, Section Proving and Short Circuit testing, we provided the system protection study and designed and installed the substation’s new frame leakage protection.

The new substation module feeds the sidings with DC traction power via a pair of controlled track switches and eleven trackside isolators, all of which were installed, tested and commissioned by Antagrade. All traction cabling - main feeder cables and conductor rail jumpers, negative bonding and return was laid and installed by us.

The Silwood project demonstrated Antagrade’s core strength as a flexible single-source supplier of design coordination, installation, testing and commissioning services for all elements of the traction power system.
WRAYSBURY SUBSTATION
HV SWITCHBOARD REPLACEMENT

The project was part of a strategic upgrade in which a new HV switchboard was installed to provide additional flexibility in the Network Rail 33kV distribution network.

Antagrade took responsibility for civil and electrical design and implementation works involving reconfiguration of the substation and phased changeover of essential connections to the HV network. All electrical design was carried out in-house, with a new switchboard and connections to power and peripheral systems installed, tested and commissioned to a challenging programme to meet new train service requirements.

The design and build package included all proposals for layout, interconnection, testing and integration and required structural modifications to the building as well as the provision of an innovative bunded shelter for outdoor transformers (the site was located between freshwater lakes in rural Surrey).

The works were further complicated by the inadequacy of the original 1950s cabling and supervisory system to accommodate the control and communications requirements of the latest switchboard and protection systems. By using local gathering and transfer, data was relayed between site and control room via adjacent substations, generating communications duplication capacity and thereby providing increased system availability.
NETWORK RAIL

EARTHING DESIGNS GRIP 1-4

The scope for the two projects was to investigate a total of 95 traction power distribution sites to establish and review existing Earthing arrangements and develop designs to define the extent of works necessary to comply with both Network Rail and European standards.

Works involved topographical and equipment survey, soil analysis and system modelling, from which the detailed designs for remedial or replacement contracts were produced. A major element of the works was the investigative and planning process necessary to reach the many remote sites safely, using the company’s own track-qualified protection and substation authorised staff.

With such a large number of sites, designs and access information, effective development and operation of data management systems played a key part of the effective delivery of the works.
EAST LONDON LINE

TRACTION POWER SYSTEM MAINTENANCE

The East London Line is a former London Underground line, now been incorporated into the London Overground and running North to South through the East End, Docklands and South East London. The East London Line section covers seven substations and one Track Paralleling Hut including supplies to the Depot facility at New Cross Gate.

Antagrade have maintained all the traction power equipment on the revamped line since its opening in 2010. This includes planning, coordination and multi-party project interfacing to ensure undisrupted train running as well as carrying out routine maintenance activities.

All works are carried out using our in-house Network Rail substation-competent authorised personnel and technicians working to Network Rail standards.

We also provide technical support to the systems stakeholders and our expertise has been called upon for significant advisory, remedial and ad hoc works.

The scope of equipment maintenance responsibility includes, transformers, rectifiers, AC, DC & LV switchboards and auxiliary equipment.
MANCHESTER METROLINK

PHASE 1 TO PRESENT DAY

Manchester’s Metrolink light rail system was commissioned in 1992 running from Bury in the North to Altrincham in the South via the City Centre with a spur to Piccadilly main line station.

Antagrade provided site installation management and installed the complete fixed traction power supply equipment at twelve substations form the 6.6kV or 11kV incoming supply to the 750VDC traction output to the OLE.

Our scope of work included installation and jointing of the underground cables in the City Centre and trackside cables elsewhere together with the traction current return bonding.

Building on our involvement on the initial Manchester Metrolink construction we have provided technical services throughout the construction and integration of the tram system’s great expansion.

From the site management and pre commissioning of new modular substations and Track Paralleling Huts to the reconfiguration of the existing traction power system to allow reinforcement and reconfiguration Antagrade’s expertise has been utilised throughout the project.

COMPLETED WORKS INCLUDE

Relocation of equipment, including transformer rectifier units and circuit breakers, and integration design and installation at a key system section to allow traction power supplies to be connected to a new depot facility.

Taking delivery and pre-commissioning of modular substations and TPH to reinforce power supplies to the system and for the Phase 3 extension.

Protection system works including the design, installation and commissioning of a new Hard Wire Mass Trip system.
Network Rail Principal Contractor’s Licence

Antagrade holds a Network Rail Principal Contractor’s Licence allowing us to undertake work directly on the Network Rail controlled infrastructure throughout the UK.

BS EN ISO 9001

Antagrade’s Quality Management System is independently audited and approved against International Standard BS EN ISO 9001. This guarantees our customers with assurances about the quality, safety and reliability of the services we provide.

RISQS

Antagrade is RISQS registered under Supplier ID 93583.

Achilles Licensed Assessors

Accreditation allowing our Assessment Team to carry out Level A and B Competence Assessments for access to Network Rail’s Electrification Assets under License RTAS0312.
Antagrade Electrical Limited was established in 1983 by engineers experienced in AC and DC Traction Power Construction going back to the West Coast Main Line Stage 1 Electrification.

We were formed by personnel from Switchgear and Cowans, part of CEM group which included Bertram Thomas (DC Traction Breakers), Hackbridge and Hewittic (Transformers and Rectifiers).

Switchgear and Cowans (S&C) manufactured AC Switchgear up to 33kV including 25kV Switchgear on the West Coast Main Line. The experience gained at S&C in AC and DC traction power systems included design, manufacture, site installation and commissioning, in particular on the West Coast Main Line Stage 1 Electrification.

The company’s original operations were substation and equipment construction. This expanded with the business to include track bonding, track cabling, track isolators, indicators and shore supply systems and maintenance.

Major contracts have included the site management and installation of traction and substations on Docklands Light Railway, Manchester Metrolink, London Underground, Channel Tunnel-related Power Supply Reinforcements and later the Channel Tunnel Rail Link together with Network Rail Power Supply Upgrade projects.
TELEPHONE
01606 833299

FAX
01606 836959

EMAIL
enquiries@antagrade.co.uk

HEAD OFFICE
Antagrade Electrical Limited
6 Verity Court
Middlewich
Cheshire
CW10 0GW

Click for directions to Middlewich

SOUTH OFFICE
Antagrade Electrical Limited
Tannery House
Tannery Lane
Send, Woking
Surrey
GU23 7EF

Click for directions to Woking