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# Case Study 11kV Transformer

## Introduction

From concept to completion Inspec Systems Ltd are proud to announce the successful commissioning of a new 1.6MVA, MV to LV transformer for a major chemicals site based in Hull.

The Client operates a unique renewable fuel additive providing a uniquely sustainable option of alternative energy helping to decarbonise road transport fuel whilst also supporting the agriculture sector.

As part of a debottlenecking project additional equipment and power requirement was identified requiring the installation of a new transformer with the significant modification of existing distribution equipment.

## Project Scope

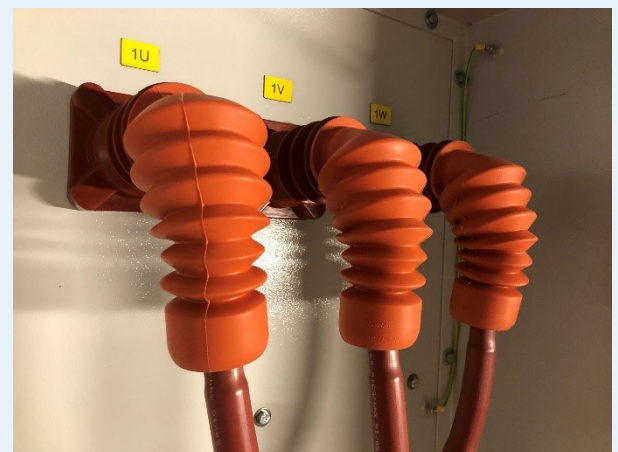
This new transformer provides a standalone power supply to an LV Motor Control Centre (MCC). This feeder supports the client's investment in their biofuels plant, providing a future proofed distribution system considering capacity for planned and future investment.

We worked closely with the Client every step of the way, ensuring the highest standards in health and safety delivery, meeting their requirements, program, and budget as part of their investment project.

## 11kV System Design

Through the production of a complete earthing design, covering touch and step potential, we identified shortcomings in the Clients existing earthing installation leading to further improvements across site.

Due to the significant increase in load the project required the full electrical distribution to be modelled in ETAP considering load flow, harmonics, and protection settings.





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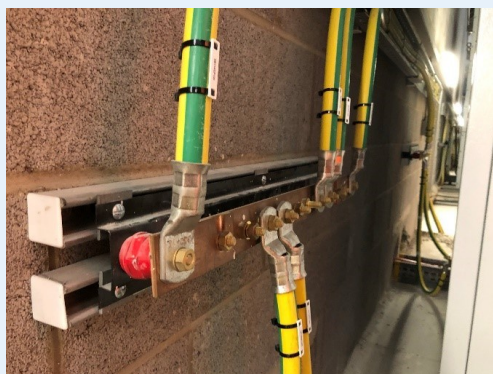


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## Primary Deliverables

The following outlines the key deliverables for the project:

- Feasibility study with cost assessment,
- Front end engineering design (FEED) study with major equipment specification sheets meeting the client's procurement requirements,
- Detailed design and engineering including:
  - MV and LV cable calculations,
  - LV/LV protection settings study and inter-trip requirements,
  - Transformer earthing study and design—touch and step potential
- Installation and testing including:
  - Full cable point to point and inter-trip testing between LV and HV protection cubicles
  - Secondary injection testing of Vacuum Circuit Breaker (VCB) and Air Circuit Breaker (ACB) protective devices
  - Primary injection testing of Restricted and Standby Earth Fault (REF and SBEF) Current Transformers (CTs)
  - Torque testing of all terminations: HV, transformer and LV
  - LV cable testing to BS7671 and HV cable testing including:
    - Insulation resistance
    - Pressure testing
    - Phase rotation testing
    - Transformer testing





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### Conclusion

From feasibility to completion the project overall was considered a success—with delivery on time, on cost, and with zero QHSE concerns.

Feedback from the Client throughout the project included:

- “Inspec’s actions reduced the impact of delays and helped keep the project on time and within cost.”
- “We like Inspec because they take ownership, and have the people to do the complete job”.

### What Next?

This project further demonstrates our broad capabilities and turnkey approach. Call us today to discuss how we can help you.



### Contact Us

From concept to completion or at any stage we have the skills, capability, judgement and drive to support your projects.

Call us now to find out what we’ve been up to and how you can take benefit from our lessons learned over the past 20 years.



### Contact Us

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