

16MW CHP System for Welsh Power

ProGen was commissioned by Edina to design and build a bespoke 16MW Combined Heat and Power (CHP) system for Welsh Power. The project was located within an industrial unit in Warrington and involved constructing and integrating various electrical systems adhering to specific technical project specifications.



Client
Edina

Project Value
£700,000

Project Type
Industrial / Power Generation

Location
Warrington (Industrial Unit)

Background

Objectives: To deliver a full design and build of LV (Low Voltage) and HV (High Voltage) electrical services for the CHP system under tight deadlines while ensuring compliance with Welsh Power's specifications.

The Challenge

The project required intricate coordination due to the bespoke nature of the eight gas 11KV CHP engines and their electrical systems. This demanded close collaboration with mechanical services and other contractors present on-site, making effective communication and project management critical to meet deadlines.

Project Scope

Key Deliverables:

- Comprehensive electrical system design and installation, including all necessary LV and HV infrastructure components for the CHP system.

Inclusions/Exclusions:

- **Included:** Full scope of electrical services, from design to installation and commissioning.
- **Excluded:** Non-electrical elements unrelated to the CHP system installation.

Methodology

In-House Coordination: ProGen maintained full management control by providing all HV and LV services in-house, ensuring a cohesive approach to project execution and enhancing overall efficiency.

Execution

HV/LV Cable System Design and Calculations:

- Developed complete designs for HV and LV cable systems along with necessary calculations.

HV/LV Heavy Duty Cable Containment Systems:

- Installed heavy-duty cable containment systems throughout the building and CHP enclosures to ensure protective and organized infrastructure.

Control Cabling:

- Implemented 24V and 110V control cabling to support operational efficiency and system control.

Power Cabling:

- Established 230V/415V LV power cabling and 33KV/11KV HV power cabling to facilitate reliable power distribution.

Glanding and Terminations:

- Executed glanding and terminations for both LV and HV cabling, ensuring secure connections.

Lighting Systems:

- Designed and installed general and emergency lighting throughout the facility to meet safety standards.

Fire Alarm Systems:

- Provided design and installation of fire alarm systems throughout the building and CHP enclosures, ensuring compliance with safety regulations.

Security Systems:

- Implemented a comprehensive security system, including design and installation to enhance site safety.

Testing and Commissioning:

- Conducted thorough LV and HV testing and commissioning, including 33KV/11KV HV switching and related documentation to validate operational readiness.

HV/LV Switchgear and Transformers:

- Handled the installation of HV/LV switchgear and transformers necessary for system functionality.

Results

The project was successfully completed within 12 weeks, demonstrating effective coordination and communication among all trades involved. ProGen's in-house management of electrical services ensured successful project delivery, meeting all operational and safety standards.



Lessons Learned

- The importance of seamless collaboration and communication among various contractors is pivotal in ensuring timely project completion in complex installations.
- Utilizing in-house expertise serves as a major advantage in maintaining project quality and control.

Conclusion

ProGen's execution of the 16MW CHP system for Welsh Power highlights its capability to manage and deliver complex electrical engineering projects within tight timeframes. The successful completion of this project not only added value to Welsh Power but also positioned ProGen for future opportunities within the power generation sector.

