



CASE STUDY

ELECTRICAL DISTRIBUTION NETWORK UPGRADE PROJECT (EDNUP)

Actemium has supported the Electrical Distribution Network Upgrade Project (EDNUP) at Sellafield since 2018, working within the Infrastructure Strategic Alliance alongside Arup and Morgan Sindall. Providing SQEP electrical design and technical expertise, the business has modernised critical power infrastructure on site - improving resilience, reducing risk, and ensuring long-term security of supply.

Sector: Nuclear Decommissioning
Location: Seascale, Cumbria
Expertise: LV Electrical Distribution Design

Scope: Electrical Design,
Technical Assurance,
Site Surveys

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CLIENT & REQUIREMENTS

Sellafield is one of the UK's most complex and highly regulated nuclear sites, requiring robust, future-ready electrical infrastructure to support critical operations such as waste handling and reprocessing.

Delivered as part of the Infrastructure Strategic Alliance (ISA) by the Arup and Morgan Sindall Joint Venture, EDNUP is central to Sellafield Ltd.'s long-term strategy to modernise its electrical network - ensuring reliable, resilient power while reducing operational risk.

The programme was established to:

- Replace ageing legacy systems.
- Improve network reliability and resilience.
- Maintain safe, compliant operations.
- Enable long-term site modernisation and capacity growth.

To support delivery, the ISA JV required an experienced partner with SQEP-qualified engineering expertise to strengthen design capability, manage complex interfaces, and ensure alignment across multiple stakeholders.



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THE CHALLENGES

Delivering infrastructure upgrades within a live nuclear environment introduced several critical challenges, including:

- **Complex integration:** Seamlessly integrating new HV and LV infrastructure with legacy assets without disrupting operations.
- **Interface management:** Coordinating grid transformers, generation islands, and substations across multiple stakeholders.
- **Security of supply:** Maintaining continuous power and operational resilience during installation and commissioning
- **Regulatory compliance:** Meeting strict safety, governance, and operational standards
- **Programme risk:** Managing dependencies and interfaces to avoid delays and inefficiencies.

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THE SOLUTION

Actemium deployed a team of SQEP engineers to provide embedded design support, technical leadership, and programme assurance across the ISA framework.

Building on early success, the business' role expanded to include technical oversight of grid transformers, generation islands, and HV and LV substations - ensuring effective integration within a complex, live environment.

A structured, collaborative approach focused on:

- Early **interface analysis** to identify risks, dependencies, and opportunities.
- Clear definition of **installation scopes, prerequisites and hold points.**
- **Stakeholder workshops** to align teams and manage programme risk.
- Proactive **issue tracking and resolution** to prevent delays.
- Ongoing **testing, commissioning, and technical assurance.**
- **Training and support** to ensure smooth handover and long-term performance.
- **Learning from Experience (LFE)** to drive continuous improvement.

This approach enabled early risk identification, reduced programme uncertainty, and ensured safe, efficient delivery.

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BENEFITS

EDNUP is now recognised as a flagship programme within the ISA framework, delivering lasting value to Sellafield, including:

- **Reduced programme risk:** Early identification and resolution of issues prevented costly delays and disruptions.
- **Improved reliability and resilience:** A modern, purpose-designed electrical network with built-in redundancy
- **Enhanced safety and compliance:** Delivered via a robust design processes aligned with nuclear regulatory requirements.
- **Seamless integration:** New infrastructure successfully embedded within existing systems without operational impact.
- **Long-term performance:** Future-ready electrical network supporting ongoing site operations and development.

Today, the EDNUP programme ensures Sellafield remains operationally secure, resilient, and prepared for future challenges. The capability developed has enabled Actemium to apply the same delivery focused, risk reduction approach to other complex, regulated infrastructure projects across the UK nuclear and defence sectors.

DELIVERY PARTNERS



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