ECHELON DATA CENTRES

TECHNOLOGY PARTNER

ABB

Delivering Intelligent, Resilient Medium Voltage Infrastructure for DUB12 & DUB13

ECHELON DUB12-13, IRELAND

Project Overview

Echelon Data Centres is a leading developer and operator of hyperscale data centre infrastructure. DUB12 and DUB13 form part of the wider DUB10 campus, which will deliver over 90MW+ of IT load capacity, incorporating a grid substation and on-site power generation to support resilient, large-scale digital infrastructure.

Deliver maximum uptime, operational resilience and future-ready medium voltage (MV) infrastructure.

To achieve this, Echelon partnered with ABB to design, supply and commission an intelligent MV switchgear solution capable of automatic fault isolation and rapid power restoration.

The Challenge

For hyperscale data centre operators, power reliability is mission-critical. Even short outages can have significant operational and financial implications.

Together, ABB and Echelon faced several key challenges:

- Delivering a fully automatic MV ring system capable of isolating faults and restoring supply without manual intervention
- Coordinating installation and commissioning across 18 restricted-access switchrooms
- Managing complex integrated GOOSE logic communication across the MV network
- Navigating restricted access and construction-stage constraints while maintaining programme timelines

Commissioning required real-time interaction with the complete MV network.

Despite these constraints, close collaboration between ABB, Echelon, and Kirby Group Engineering ensured progress continued in line with the wider site schedule.

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The Solution

ABB supplied and commissioned:

- ZX2 Primary Gas-Insulated Switchgear (GIS)
- UniSec Secondary Air-Insulated Switchgear (AIS)
- Protection Relays

Integrated GOOSE-based automation and protection logic. Together with Echelon, the system was configured to deliver:

ZX2 Primary Gas-Insulated Switchgear (GIS)

UniSec Secondary Air-Insulated Switchgear (AIS)

Protection Relays

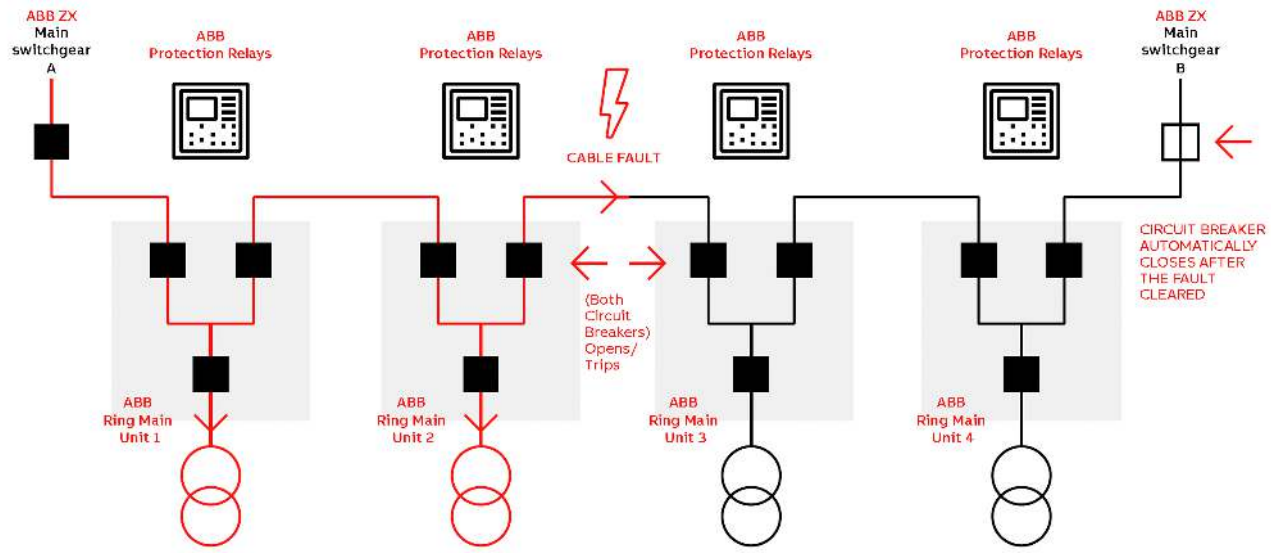
Intelligent Protection & Automation

Smart Fault Detection
ABB Protection Relays continuously monitor the network, instantly detecting cable or busbar faults.

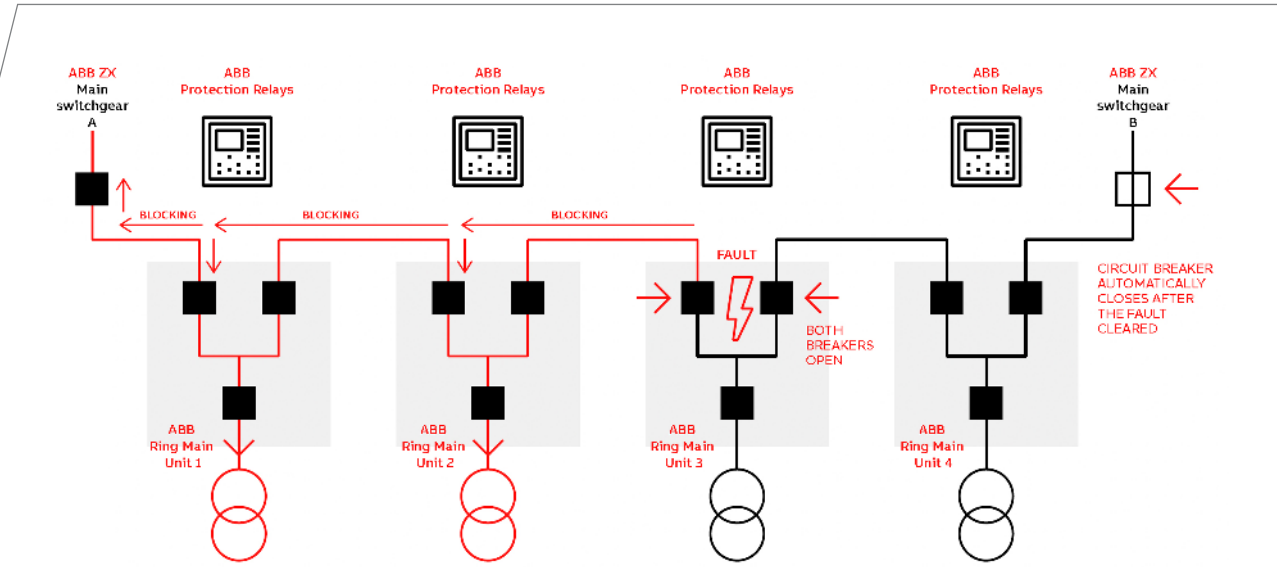
Automatic Isolation & Recovery
Using high-speed GOOSE communication, the system isolates the faulted section and automatically restores power via the alternate side of the ring.

Fail-Safe Operation
If one power source fails, the system reroutes supply within seconds.
If both sources are lost, the system safely waits for restoration before reconfiguring.

Operational Flexibility
Operators retain full control, and automation can be blocked locally if required, ensuring flexibility during maintenance or operational adjustments.



CABLE FAULT



DOC/DEF Blocking Scheme: The Protection Relays closest to the fault blocks the upstream Protection Relays and so on.
This prevents operation of other Circuit Breakers in the ring and ensures only the Circuit Breakers closest to the fault are tripped/opened.
The partner Circuit Breaker within the Ring Main Unit is intertripped by the Protection Relay that detects the fault.

CBFP: If a Circuit Breaker fails to open after a trip command is issued, there is a circuit breaker failure scheme such that both adjoining Circuit Breakers are tripped after 160ms.

RMU FAULT

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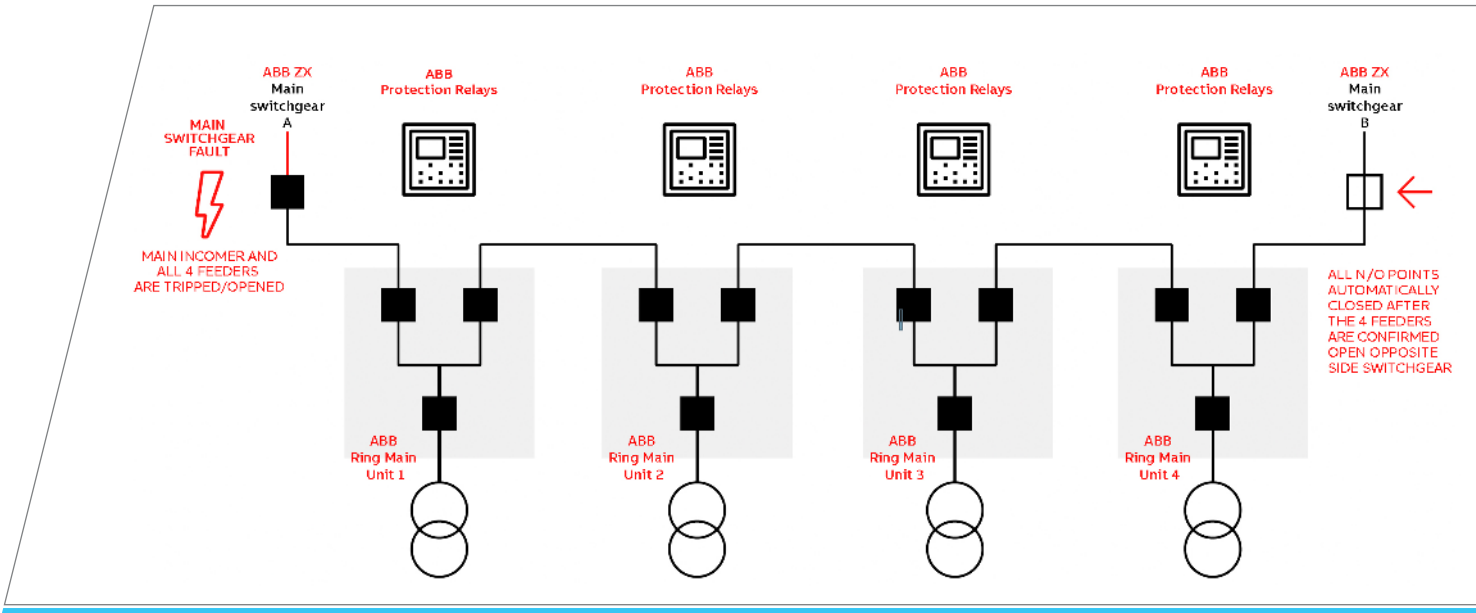

MAIN SWITCHGEAR FAULT.

Results & Impact

Through strong partnership and coordinated delivery, ABB and Echelon achieved:

- A fully automated MV ring network
- Rapid fault isolation and restoration without manual switching
- Improved resilience across 18 switchrooms
- Reduced outage risk
- Enhanced operational continuity with minimal human intervention

The completed solution supports Echelon's wider strategy of delivering high-availability, scalable and future-proof data centre infrastructure.

In addition, the collaboration provided valuable lessons for future projects, including:

- The importance of agreeing on a tailored commissioning structure and access plan early in the programme

These insights further strengthen future joint delivery models between ABB and Echelon.

Partnership in Action

This project exemplifies how technology expertise and operator insight combine to deliver resilient digital infrastructure. Echelon defined the operational resilience and uptime requirements.

- ABB delivered advanced MV automation, protection and commissioning expertise, and provided factory and engineering support.
- Kirby Group Engineering supported installation and coordination on site.

The result is a robust MV backbone designed to support hyperscale growth and evolving digital demands.

Strategic Themes

This joint project supports:

- Evolving energy grid infrastructure
- Intelligent grid automation
- Powering strategic partnerships
- Operational reliability
- Future-proofed electrification