VERTIV.

Case study

Scalable Power: Substation Upgrade Enables Data Centre Growth Without Downtime

Background

The Telco customer's existing kiosk substation had reached maximum capacity, creating constraints on data centre operations and limiting future scalability. With rising demand for digital services and network growth, the site required additional power to support expanding workloads while maintaining continuous availability. To enable growth without disruption, the Telco customer needed a scalable substation upgrade capable of safely delivering a 28% increase in capacity.

Challenges

Their existing kiosk substation infrastructure had reached capacity, posing risks to both ongoing operations and future scalability.

To address this, the customer required a scalable and reliable substation upgrade, one that could deliver a 28% increase in power capacity while ensuring zero disruption to live data centre services.

Solution

Vertiv partnered with Air Water Power (AWP) to deliver a turnkey High Voltage (HV) substation upgrade tailored to the client's capacity and uptime requirements. The project aimed to increase electrical capacity while preserving operational continuity across the data centre.

Industry: Telecommunication

Region: VIC, Australia

Project/Solution: High Voltage (HV) Kiosk Substation Upgrade

Partner: Air Water Power (AWP)

Vertiv Products & Services Deployed

- Vertiv™ switchgear and protection systems
- Vertiv™ power system design and engineering services
- Temporary generator deployment and integration
- Project management and commissioning support

Key solution elements included:

- A comprehensive site and underground infrastructure assessment
- A Vertiv™ custom-engineered kiosk substation designed to handle increased load
- Integration of a temporary Vertiv™ generator system with full redundancy
- Collaboration with local energy authorities to secure easements
- A phased execution approach supported by Vertiv's engineering and commissioning teams

The upgrade was specifically designed to achieve a 28% uplift in total site power capacity, enabling the customer to onboard new workloads with confidence.

Project execution

Site assessment and planning

AWP conducted a detailed site and underground survey to evaluate existing electrical infrastructure and trenching requirements. Vertiv's engineering team led load modelling and substation sizing to support the required 28% capacity increase.

Design and engineering

A bespoke kiosk substation was engineered using Vertiv™ switchgear and protection systems, purpose-built for high availability and future expansion. Vertiv developed detailed Method of Procedures (MOPs) and a phased implementation plan to minimise operational risk during the upgrade.

Installation and temporary power integration

Vertiv™ temporary generator systems with N+1 redundancy were deployed to maintain uninterrupted power throughout the installation phase. Civil and electrical works, including trenching and switchgear integration, were executed in parallel with live data centre operations.

Coordination and compliance

Vertiv and AWP worked closely with the local energy authority to secure the required easements and approvals. The project also included full coordination of permits, change requests, and strict adherence to Workplace Health and Safety (WHS) standards.

Commissioning and handover

Following installation, the new substation was tested, calibrated, and integrated into the site's operational systems. Vertiv and AWP jointly executed the final commissioning. Landscaping and site remediation were completed as part of the project handover.

Results

The project successfully delivered a 28% increase in site power capacity, providing the customer with a scalable and resilient power foundation. The phased approach ensured a seamless transition, with no downtime during the upgrade process.

Key outcomes:

- 28% boost in power capacity, supporting increased IT loads
- Seamless substation upgrade with zero service interruption
- Fully compliant HV infrastructure designed for long-term growth
- Improved visibility and control over power systems
- Enhanced reliability with redundant temporary power in place

Why Vertiv

Vertiv's deep expertise in critical power systems, combined with its close partnership with Air Water Power, ensured the successful delivery of this complex infrastructure project. The combination of modular, engineered-to-order substation technology and real-time project execution allowed the customer to maintain uptime, increase capacity, and futureproof their data centre environment — all without disruption.

Looking to optimize your data center's efficiency? Explore how innovative cooling solutions can transform your operations and drive long-term savings.

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