



Electrical & Automation Capability Statement

YOUR ENGINEERING PARTNER





Brightwater

Turnkey Electrical & Automation Capability

Brightwater has an in-house industrial electrical and automation team that allows us to self-execute bespoke electrical projects, through to process upgrades of legacy hardware.

Every project we undertake is based on total transparency and client collaboration at all stages of the process. As an independent integrator, we are not bound to any suppliers; therefore work with a variety of technology partners to develop the appropriate solution. This ensures we always select the best fit for purpose technology to deliver the ideal result for our clients.

Industries

With locations in Auckland, Nelson and Greymouth we provide industrial electrical and automation services to a wide range of industries including:

- Infrastructure Projects
- Defence
- Utilities Waste Water / Water Treatment
- Power Generation
- Renewable Energy
- Materials Handling
- Dairy
- Manufacturing

Project Management

Brightwater has a team of people including Project Managers, Project Engineers, Electricians, Instrumentation Technicians, Fitters and Planners. Our staff have worked on a wide variety of both small and large scale electrical and automation engineering projects across multiple industries. This depth of experience gives our team the ability to adapt quickly and customise our service delivery to best suit the unique requirements of a client's project.

Our services include:

- Feasibility Studies
- Electrical Engineering Design and Drafting
- Procurement
- Project Management and Construction Management
- Construction Supervision
- Commissioning and Training
- On Site Electrical Maintenance & Support



Electrical Engineering Services

Our in-house electrical team provides complete end-to-end industrial electrical services from initial design through to procurement, site installation, maintenance and emergency repairs. Unlike many other industrial engineering companies, we are able to self-execute the work. Through this approach we directly control the cost, quality, safety and overall outcome of the project for the client in a collaborative approach.

Our services include:

- Electrical Engineering Design
- Control Panel Design
- Instrumentation/calibration/Installation
- High & Low Voltage Electrical Inspection & Testing
- Power System Analysis
- Power and Lighting Installations
- Preventative Maintenance and Emergency Repairs

High Voltage Electrical Services

The reliability and performance of High Voltage (HV) electrical assets are critical to an operations success. We provide a full range of industrial HV services nationwide from the construction of a new installation to ongoing maintenance contracts.

Our services include:

- Earthing Installation
- Substation Installation
- Installation of HV Cabling & Equipment
- Cable Jointing
- Switchboard Changeouts
- HV Project Management
- HV Inspection, Testing & Maintenance

Safety Audits & Risk Assessments

With constant changes to regulatory compliance, Brightwater provides peace of mind to clients through our diligence to these changing standards. We provide risk assessments studies and safety auditing services to identify hazards and recommend electrical system modifications. Additionally, we have broad experience in implementing modifications to plant floor machines and control systems to comply with machine safety requirements.



Mobile Operations Support

Our aim is to deliver an end to end service which supports our clients through the lifecycle of their electrical assets. We provide a mobile workforce of electrical engineers and electricians who deliver scheduled maintenance programs as well as emergency repair services.

Our services include:

- Scheduled Maintenance Planning & Support
- Rapid Response to Repairs & Faults
- PLC Programming & Upgrades
- Electrical Safety Compliance Audits

Automation Engineering Services

Our objective is to always engineer a solution that delivers the optimum outcome based on plant quality and productivity, whilst maximising energy and raw material efficiency. We are able to achieve this through a team of engineers who have a high level of capability in automation, visualisation and supervisory control (PLC & SCADA). This combined with our own internal process and instrument design (P & ID) enables our team to integrate operational data into both execution and management systems.

Our services include:

- Functional Descriptions
- SCADA & HMI
- Safety Programming – Audit & Risk Assessment
- PLC Programming
- Remote Management & Support Services
- Analytical Information & Historical Data Acquisition

Our Approach to Safety

Zero Harm is a core value of Brightwater's and the Health & Safety of our staff is paramount. Having significant experience in undertaking large and small scale projects has given Brightwater the internal structure, processes and support staff in order to create a strong Health & Safety culture and performance. All work carried out by Brightwater is done in accordance with our stringent H&S policies and monitored by our Health & Safety Advisor. Our safety record translates into lower insurance and liability rates, therefore reduced costs and risks to our clients.

Project Examples

Daiken PLC K Upgrade

Overview:

Medium Density Fibreboard manufacturer Daiken NZ Ltd is a joint venture between two Japanese companies Daiken Corporation and Itochu Corporation. As part of their continual improvement program, Daiken commissioned Brightwater to undertake the upgrade of their 1771 Programmable Logic Controller (PLC) K and I/O racks on their Line 2 Forming area located at their Rangiora manufacturing plant.

Solution:

Their existing PLC was replaced with Rockwell's 1756-L62S, a safety PLC designed to future proof the site and provide support infrastructure for any possible safety upgrades. In addition to the PLC K upgrade, Daiken's DH+ network was decommissioned and replaced with a new Ethernet/Fibre backbone.

The Rockwell PLC system controls all aspects in relation to Daiken's fibreboard forming area on line 2. Constant electrical feedback is received from the line's essential systems to provide motor status, positional status, line speed and various alarms. All this data is managed on the fly by the PLC which can perform automatic adjustments where possible, or provide feedback to Daiken operators in the control room via an ArchestrA HMI (Human Interface Device) or SCADA (Supervisory Control and Data Acquisition).

The entire project including onsite installation spanned seven months. In order to minimise the impact on production, key changeovers and testing on site were completed in Daiken's monthly 12 hour maintenance shuts. The result being that Brightwater, along with technology partners Industrial Controls Christchurch Ltd delivered all the necessary changes and the final upgrade without any disruption to Daiken's production.



Project Examples

Holcim Rooty Hill Regional Distribution Centre

Overview:

In a key strategic step to future proof the supply of construction materials to the Sydney metropolitan area, Holcim Australia commissioned the development of a Regional Distribution Centre (RDC) in the Sydney suburb of Rooty Hill. The RDC receives construction materials (sand and aggregates) via rail and stores these materials ready for distribution to Sydney based customers. The majority of the aggregate and sand product is provided by Holcim's newly built Lynwood quarry situated 160km south of Sydney.

Solution:

In May 2013, Brightwater was awarded the contract to deliver the full engineering design, construction, installation and commissioning of the facility to receive, unload, and store product delivered by rail. This included the full automation and electrical design for the plant.

Operating 24 hours a day, seven days per week, the facility can receive up to nine trains per day and process up to 2500 tonnes per hour. The Brightwater automation and electrical team designed an automated rail receipt and unloading system using RFID technology to recognise each individual wagon of product before transporting the material to allocated storage areas. The entire system processes up to 2500 tonnes per hour and is able to unload and store 36 wagons of aggregate and or sand within 90 minutes.

A bespoke product tracking system was installed to enable Holcim to track the product as it is travelling through the conveyor system. This allows for a higher product throughput due to less dead belt space on conveyors and prevents contamination between products. A moisture addition system was also developed to allow the product to be conditioned as well as minimising the impact of dust on site.

Yashili Water Treatment Plant

Overview:

Yashili is one of the leading infant formula producers in China. In 2014 Yashili developed a 8mt/hour Infant Milk Formula facility in Pokeno, north Waikato.

Brightwater was contracted to deliver a potable water plant capable of treating and producing 3,000m³ of water per day. Yashili acquired resource consent to receive raw water supplied from a bore adjacent to Yashili's property. This raw water presented its own challenges being high in iron and manganese and extracted from the ground where it's remained for over 150 years.

Solution:

Brightwater along with technology partner Ixom Australia, were tasked to deliver a complete engineering, procurement and construction (EPC) water treatment facility.

The final plant comprised of innovative media filtration technology, when coupled with Chlorine Gas chemical dosing, was able to treat the water within spec without altering the incoming pH.

This was a major advantage over standard green sand filters and was engineered to be a substantial cost saving for Yashili's annual chemical inventory.

The completed plant is fully automatic requiring minimal user operation and maintenance. This is made possible due to the online analytical instrumentation that continuously measure water quality. All aspects of the plant can be monitored/controlled locally and remotely from the Brightwater supplied PLC & SCADA system.

Once started, the plant is able to run itself, completing its own backwash cycles and regeneration phases with zero operator input. As part of the project, Brightwater also designed and managed the WTP Building electrical design and installation.

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