

Control Systems and Automation

BEC Engineering is a specialist electrical engineering consultancy providing professional services to the mining, utilities, materials handling, oil and gas, industrial and petrochemical industries.



Control Systems

Our reputation as a process controls systems specialist is the result of our expertise and track record in a variety of processes across a wide range of plants.

This experience allows us to quickly comprehend your process and its variables, and apply our knowledge to optimise the response of your plant to changing conditions.

Whether it's a new project or you need to optimise your existing processes, BEC can help. We will deliver the improvement you require with simple and effective solutions.

Automation

Our experience encompasses all aspects of automation for existing and new plants. For mobile or fixed equipment using any proprietary system we use the latest technology to deliver customised automated systems where cost benefits are highly visible.

Service Range

Large Projects and Process Plants

- > Major control systems
- > Development projects on PLC/SCADA/DCS platforms

Process Systems and Generation

- > Support control systems projects for electrical power group PLC/SCADA/DCS control room design

Controls and Automation

- > Detection systems
- > Profiling systems
- > Route sequencing
- > Anti-collision
- > Robotics
- > Stockpile control
- > Machine optimisation

OEM Controls

- > Grinding mills
- > Crushers
- > Car dumpers
- > Reclaimers
- > Shiploaders
- > Stackers
- > Harvesters
- > Filters
- > Reactors
- > Thickeners
- > Concentrators

Process Optimisation and Modelling

- > Process control and simulation
- > Expert systems
- > Process modelling
- > Loop tuning
- > Setpoint and multivariable controllers

Networks and Communications

- > Network design
- > Telemetry
- > Microwave systems
- > Voice and data radio
- > Fieldbus systems
- > Comms protocols
- > VOIP, CCTV, etc, RFID, GPS, GSM

Production Systems

- > Database programs
- > Historians
- > Web access
- > Production reports
- > Training simulators
- > MES
- > Custom solutions

Oil and Gas

- > Hazardous area systems
- > ESD systems
- > SIS systems

Site Support

- > Site-based support
- > Remote access
- > Phone callout systems



We seamlessly integrate our services into total project delivery - it's our competitive advantage.

Balance Machine Optimisation Project

Port Hedland, WA, Australia

Fortescue Metals Group commissioned BEC to undertake electrical and control systems design as part of their Balance Machine Optimisation Project at Anderson Point Port in Port Hedland.

As part of the project, BEC was required to design, supply, configure, install, test and commission:

- > machine stockpile profiling instrumentation;
- > redundant machine encoders for ACS long travel, slew and luff;
- > 3D HMI for stockyard visualisation;
- > stacker infill stacking optimisation using stockpile profile data;
- > reclaimer optimisation using stockpile profile data including stockpile setup positioning; and
- > upgrade of route sequencing system coding for automatic orebreak calculation and control on shiploading and inloading circuits.

QBH Gladstone Shiploader Upgrade

Gladstone, QLD, Australia

BEC was engaged by QBH to undertake electrical, instrument and control systems design for a refurbished coal shiploader that had been relocated from Gladstone to Brisbane. The upgrade included increasing the shiploader's capacity from 6Mtpa to 12Mtpa.

BEC's scope included the following:

- > electrical and control system inspection and reporting for machine refurbishment;
- > specifications and scopes for upgrade work;
- > HAZOP participation and risk assessments;
- > system design and drafting;
- > services procurement; and
- > system testing.

Parcel Sorting Machinery Upgrade

Kewdale, WA, Australia

BEC was engaged to carry out design engineering and program integration to upgrade sorting machinery at Australia Post's Perth Parcel Centre.

BEC was able to custom design, integrate and commission the upgraded equipment to provide a longer lasting facility with better sorting performance.

BEC's scope included the following:

- > electrical schematic drawings;
- > hydraulic ram system control;
- > tipping sequence control;
- > safety instrumentation for access gates and emergency stops;
- > automation instrument design;
- > PLC control and documentation;
- > operator and technician training;
- > system testing and commissioning; and
- > machinery safety accreditation.

Million Ounce Plant Upgrade

Niolam Island, New Ireland Province, Papua New Guinea

BEC was engaged by Lihir Gold to undertake electrical and instrumentation design for a whole-of-plant upgrade at the Lihir Gold Mine, involving an additional 80MW of generation, a processing plant, and grinding and miscellaneous loads, with a total system load and generation of 150MW.

BEC was required to:

- > conduct fault level impact mitigation
- > design new load centres, mills, drives, instrumentation and controls
- > undertake project scheduling
- > provide progress and cost reports
- > schedule client meetings;
- > and undertake site commissioning.

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