

# Power Systems and Generation

We undertake and complete projects from feasibility through to implementation with a commitment to ongoing technical support.



Cardno BEC is an established engineering consultancy providing professional services to the mining, materials handling, utilities, oil and gas, industrial and petrochemical industries.

Since 1996, we have completed projects for major clients throughout Australia, North and South America, Africa, Asia, Europe and the Pacific.

We have proven capabilities across all aspects of project management, power generation, power systems, control systems, automation, plant integrity and operations support.

Steady growth has seen us develop into a respected partner of many of the world's premier companies.

'Applied expertise' is the difference – our clients are served by a team of dedicated people with the most appropriate and relevant experience.

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## **Power Systems**

All projects are dependent on power system reliability and safety.

Our Power Systems team is dedicated to providing total engineering services for your network, be it in the resources, industrial or public utilities sectors.

We make it our business to keep abreast of technological change and this is reflected in our system designs which routinely set industry standards and are always tailored to meet your individual needs.

## **Complete Electrical Power System Design for Generation, Transmission and Distribution**

- > Transmission and distribution system design
- > Substation design and construction
- > Protection system design

## **Energy Management**

- > Determine current system structure and capacities
- > Assessment of power delivery system efficiencies and strategies for optimisation
- > Power factor correction
- > Investigation and design of automation systems for enhanced equipment management
- > Load flow studies and development of strategies for energy management

## **Power System Fault Analysis**

- > Study and assessment of faults
- > Investigation reports
- > Corrective action recommendations
- > Power system analysis
- > Emergency response to critical failures



Safe systems,  
employee recognition,  
continuous improvement,  
client satisfaction.

## Power Generation

Whether you need to increase power capacity, maximise efficiency or design a new power station, even in the most remote location, Cardno BEC has the expertise and the personnel to deliver a solution for you.

Cardno BEC has an enviable record on power station projects for mining companies and regional centres throughout Australia and overseas. We bring direct and relevant experience to bear on your requirements.

By contacting us early in the conceptual stage the benefits and cost savings can be significant. Let us carry out your feasibility study to identify the simplest, most effective solutions.

## Power Station Audits

- > Performance assessment and equipment monitoring
- > Efficiency reviews with regard to fuel, load profiling and load management
- > Operational procedures and compliance with statutory requirements

## Generation Asset Planning

- > Generation capacity review and planning
- > Power station design and project implementation
- > Determination of capacity for generation expansion

## Generation Control Systems

- > Review and design of upgrade and modification options
- > Design and specification of complete generation control systems
- > Development, design and programming operator interface solutions

## Engine Management Systems Design

- > Development of solutions for system upgrades
- > Design of retrofits for engine management systems

## Utility Connection Design and Implementation

- > Utility and supply authority negotiations
- > Design of utility connection protection systems

## Power Services

In addition to the power generation and power system capabilities, we can provide effective solutions and services in the following areas:

- > harmonic distortion analysis;
- > electrical safety audits;
- > insurance and accident investigation;
- > earthing system audits and design; and
- > fault rectification.

## Industry Groups

Our experience encompasses a complete range of industry sectors, including:

- > oil and gas;
- > mining;
- > utilities;
- > materials handling;
- > industrial; and
- > petrochemicals.