



# CAPABILITY STATEMENT

Engineering Excellence Delivered



## ACKNOWLEDGEMENT OF COUNTRY

At E&C Engineering, we acknowledge the Traditional Custodians of the land on which we work. We pay our respects to Elders past, present and emerging, and recognise their enduring connection to land, waters and culture. We are committed to building respectful and meaningful relationships with Indigenous communities.

## WHO WE ARE

E&C Engineering is a Perth-based electrical and control systems consultancy delivering tailored solutions for the Mining, Resources, and Industrial sectors. Our expertise spans electrical design, control systems, automation, and optimisation – helping clients boost performance, enhance safety, and reduce risk.

We take pride in delivering practical, cost-effective engineering outcomes built on deep technical knowledge and real-world experience. Trusted by major operators, we work collaboratively to solve complex challenges with precision and reliability.

Independent and locally operated, E&C is driven by a commitment to engineering excellence, strong client partnerships, and a hands-on, solutions-focused approach.

## E&C ENGINEERING LEADERSHIP



**MICHAEL S. WISESA**

*Director & Engineering Manager*

Michael is our Director with a Chartered Engineer qualification and over 17 years of experience in mining, power generation and non-process infrastructure. He specialises in the management of engineering design, operational optimisation, maintenance reliability, technology integration, risk management, and functional safety.

He has led teams across instrumentation, electrical, and control systems engineering, with hands-on expertise in design, implementation, and commissioning. Certified in functional safety and industrial cybersecurity, Michael brings a well-rounded and practical approach to every project.



**VIC CHIN**

*System Solutions Manager*

Vic is an experienced Electrical and Control Systems Engineer with over 19 years in the mining and power sectors. He holds a Master's degree in Electrical Engineering and is certified in functional safety. He has a strong background in equipment reliability, maintenance strategy, system optimisation and functional safety applications.

Having worked with major operators including Fortescue, BHP, and Rio Tinto, Vic has led engineering teams and delivered measurable improvements using Lean and Six Sigma methodologies. His deep technical insight and strategic mindset now drive E&C's business development and client partnerships.

## E&C ENGINEERING LEADERSHIP



**GENNADY BOLOTOV**

*Principal Engineer*

Gennady is a Principal Engineer with over 12 years of experience in industrial automation and control systems, including practical functional safety design. He has contributed to major projects for clients such as Rio Tinto, BHP, Chevron, the Australian Defence Force, and Main Roads WA.

Skilled in delivering high-quality project outcomes across fixed and mobile plant systems, Gennady also mentors engineers in multi-vendor environments. Known for his technical precision and leadership in engineering delivery, he plays a key role in upholding E&C's project standards.



**DAVID BARICEVIC**

*Commissioning Manager*

David is a highly experienced Electrical and Control Systems Specialist with nearly 30 years in his discipline and over 20 years in the mining industry. He has led commissioning and optimisation projects across fixed plant operations, with strong expertise in variable speed drives, instrumentation, and industrial networks.

Recognised for his practical leadership as the company's Electrical Nominee and his focus on safe, reliable outcomes, David ensures all Electrical and Control Systems projects meet the highest standards of quality, performance, and operational excellence.

# E&C ENGINEERING TEAM

While E&C's leadership sets the vision and direction, our strength lies in the collective capability of our broader team. Behind every successful project is a group of committed professionals who bring technical excellence, agility, and a strong client focus.

Our team members:

**Solutions Managers**

**Project Managers**

**Electrical Engineers Control**

**Systems Engineers Network**

**Engineers**

**Project Engineers**

**Functional Safety Engineers**

As E&C Engineering continues to grow, we remain committed to strengthening our team. We actively invest in people, seek out emerging talent, and foster a culture of continuous development.

Our ability to scale and adapt ensures we're ready to meet the future needs of our clients across Western Australia and beyond.

All services are delivered by our dedicated team based at E&C Engineering's **Perth headquarters**. We currently support a wide range of projects across Western Australia's major mining sites and industries.

# SAFETY FIRST, ALWAYS

At E&C Engineering, safety is more than a policy—it's a core value that guides every decision we make. We are committed to a zero-harm workplace and take pride in safeguarding the well-being of our people, clients, and the communities where we operate.

Our safety culture is built on accountability, awareness, and continuous improvement. From early-stage design to on-site delivery, we embed safe work practices and proactive risk management into every project.

**"We take pride in achieving over 50,000 hours without a lost time injury, and we remain committed to maintaining this standard moving forward."**

—Michael Wisesa, Director, E&C Engineering

## QUALITY & SAFETY COMMITMENTS

Our systems and culture are built around internationally recognised standards, including ISO9001 certification by GRS and our Avetta Safety Star accreditation.

### ZERO HARM CULTURE

We embed safety in design, supported by simulated testing, daily training and coaching, and ongoing site assessments—all with the goal of achieving zero harm.

### CONTINUOUS IMPROVEMENT

Regular safety audits, training, and feedback loops to enhance our safety practices.

### COLLABORATIVE APPROACH

Working closely with clients and contractors to ensure shared safety objectives and outcomes.



Perth HQ



**50,000+** hours without accident

# E&C ENGINEERING EXCELLENCE



## ELECTRICAL & INSTRUMENTATION SERVICES

E&C Engineering delivers reliable electrical and instrumentation solutions designed for safe, efficient, and compliant operations. Our expertise covers electrical design, protection systems, drive configuration, and advanced instrumentation to support seamless plant performance.



## AUTOMATION & CONTROL SYSTEMS

E&C Engineering delivers automation and control solutions that enhance safety, efficiency, and reliability across industrial operations. Our expertise includes PLC programming, HMI and SCADA development, and system integration, with scalable architectures and robust communication networks designed for consistent performance and long-term value.



## CONTROL NETWORK & CYBERSECURITY

E&C Engineering provides secure and reliable control network and cybersecurity solutions for industrial operations. Our services cover network design, fieldbus configuration, and OT system protection, ensuring resilient, real-time connectivity while safeguarding critical infrastructure in line with industry standards.



## ADVANCED PROCESS CONTROL (APC)

E&C Engineering develops advanced process control strategies to optimise plant efficiency, throughput, and product quality. Our expertise includes Model Predictive Control, Fuzzy Logic, PID tuning, and customised control schemes that improve system responsiveness, eliminate bottlenecks, and enhance overall resource utilisation.

# E&C ENGINEERING EXCELLENCE

## DESIGN DRAFTING



E&C Engineering provides electrical design and drafting solutions that deliver accurate, safe, and site-specific layouts. Our expertise includes panel layouts, single line diagrams, schematics, 3D modelling, cable routing, and earthing system design, ensuring reliable and compliant designs across industrial operations.

## MOBILE MACHINE INTEGRATION



E&C Engineering delivers integration solutions for mobile equipment, connecting machines to broader control systems through PLC, HMI, and engine protocol communication. Our expertise includes remote programming, IoT and telematics integration, wireless connectivity, and safety system enhancements to ensure efficient, reliable, and connected mobile operations.

## MECHANICAL DESIGN



E&C Engineering provides mechanical design solutions from concept development to prototyping and testing. Our services include 3D modelling, documentation, and 3D scanning, delivering accurate, practical, and reliable designs tailored to industrial applications.

## FUNCTIONAL SAFETY



E&C Engineering delivers functional safety solutions that ensure industrial systems operate reliably and within safety standards. Our expertise includes hazard and requirement analysis, safety concept and system architecture, design of safety instrumented functions, verification and validation, and management of modifications through structured processes.

# ELECTRICAL & INSTRUMENTATION

E&C Engineering provides comprehensive electrical and instrumentation services, supporting projects from detailed design through to commissioning. Our team delivers high-performance, safe, and standards-compliant solutions tailored to each client's operational needs.

We specialise in control panel design, motor control systems, equipment sizing, and specification. Our capabilities also include advanced protection relay configuration, arc flash settings, UPS systems, and generator controller integration. Every solution is engineered to maximise system reliability, efficiency, and safety.

## CORE CAPABILITIES

### Electrical Design

- Electrical drawings and schematics
- Technical specifications
- Load studies and calculations
- Cable schedules
- Installation scope of work

### Variable Speed Drive (VSD/VVF)

#### Design & Configuration

- ABB (ACS, DCS series)
- Schneider Electric (Altivar)
- Siemens (Sinamics)
- Rockwell Automation (PowerFlex)

### Generator Controller Integration

- ComAp systems

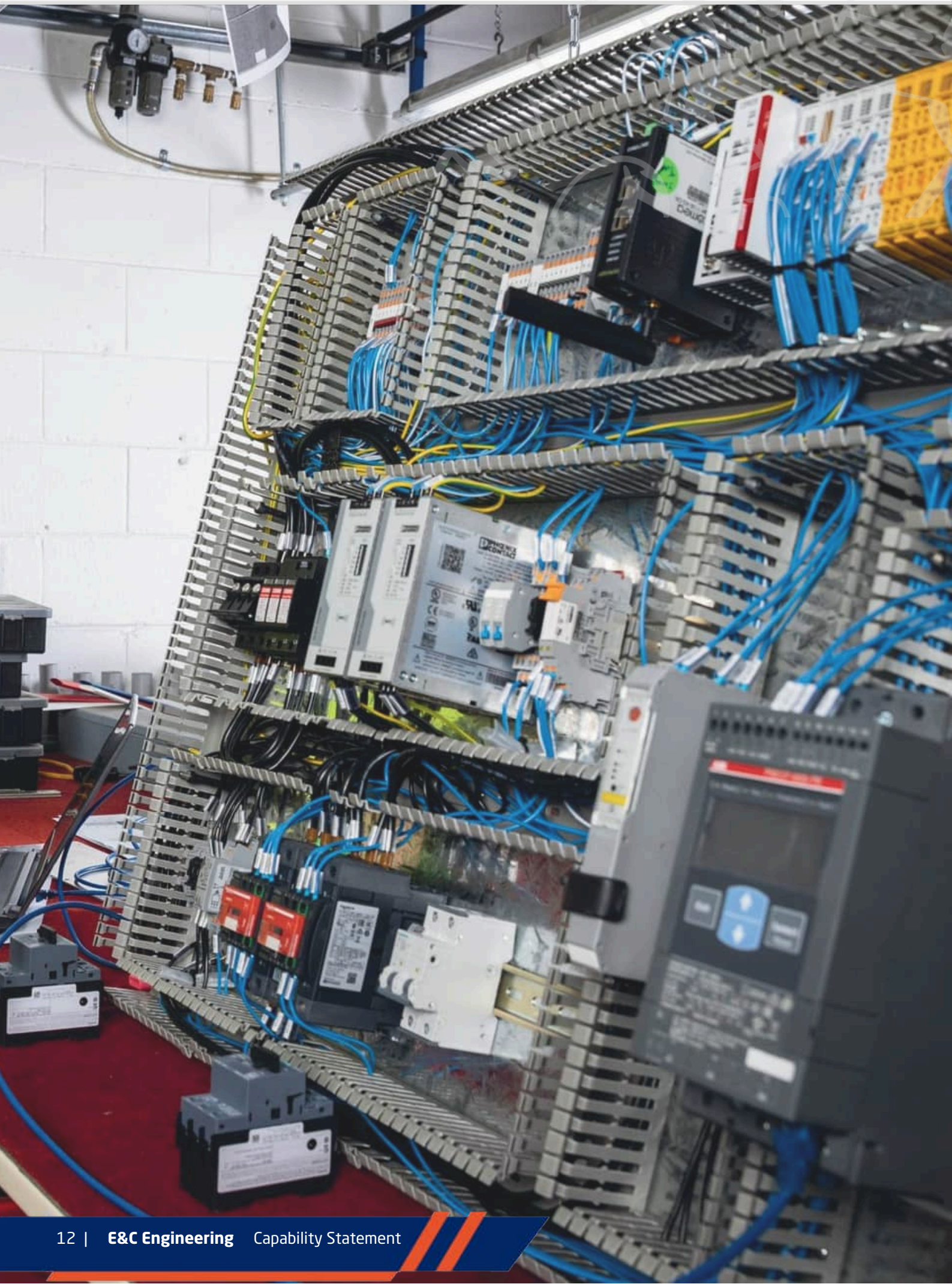
### Protection Relay Configuration

- Motor, busbar, transformer, generator, and feeder protection

### Instrumentation Design & Configuration

- Level
- Pressure
- Temperature
- Distance/profile
- Position
- Density
- Volume





# AUTOMATION & CONTROL SYSTEMS

E&C Engineering delivers complete automation solutions tailored to complex industrial environments. We specialise in PLC architecture design, control software programming, HMI and SCADA development, and robust system integration across a wide range of platforms.

Our team is experienced in developing custom automation standards to ensure reliability, consistency, and scalability across all projects. From protocol configuration to system simulation and bench testing, we provide future-ready solutions that meet evolving operational demands.

## CORE CAPABILITIES

### PLC Programming

- Schneider Electric - Control Expert, Concept, ProWorx
- Rockwell Automation - RSLogix 500/5000, Studio 5000, Logix Designer, Fuzzy Logic Designer
- Siemens - TIA Portal
- Beckhoff - TwinCAT3
- WAGO / IFM - CODESYS
- PILZ - PAS4000
- Emerson / GE - PAC Machine Edition (Proficy ME)
- Phoenix Contact PLC next

### HMI / SCADA Development

- AVEVA - Plant SCADA, System Platform
- Schneider Electric - Vijeo Designer, Operator Expert
- GE - CIMPLICITY
- Rockwell Automation - FactoryTalk View SE/ME
- Emerson - Movicon

### Industrial Communication Configuration

- Modbus RTU / ASCII
- Modbus TCP EtherNet/IP
- Profinet
- EtherCAT
- CANopen
- OPC DA / UA

### Additional Services

- Control system simulation and bench testing
- Custom standard development and documentation
- Integration of fixed plant and mobile systems

# CONTROL NETWORK & CYBERSECURITY

E&C Engineering delivers robust and secure Process Control Network (PCN) solutions tailored for industrial environments, with expertise in both wired and wireless architectures. Emphasizing network redundancy, reliability, and seamless device integration, our PCN designs support industrial fieldbus systems to enable real-time data exchange and interoperability across all automation layers. Cybersecurity best practices are built into every solution to safeguard operational technology (OT) infrastructure without compromising availability or efficiency.

E&C Engineering also delivers effective cybersecurity solutions for Industrial Automation and Control Systems (IACS), helping safeguard critical infrastructure while maintaining operational continuity. In line with standards such as ISA/IEC 62443, our services include secure system design, risk assessments, layered defense strategies, gap analysis, security level evaluations, and technology integration.

## CORE CAPABILITIES

### PCN Design & Architecture

- Layer 2 design: Redundancy, switching, VLANs, QoS, and network security
- Layer 3 design: Routing, access control lists (ACL), and industrial firewalls
- Wired and wireless network design with seamless redundancy

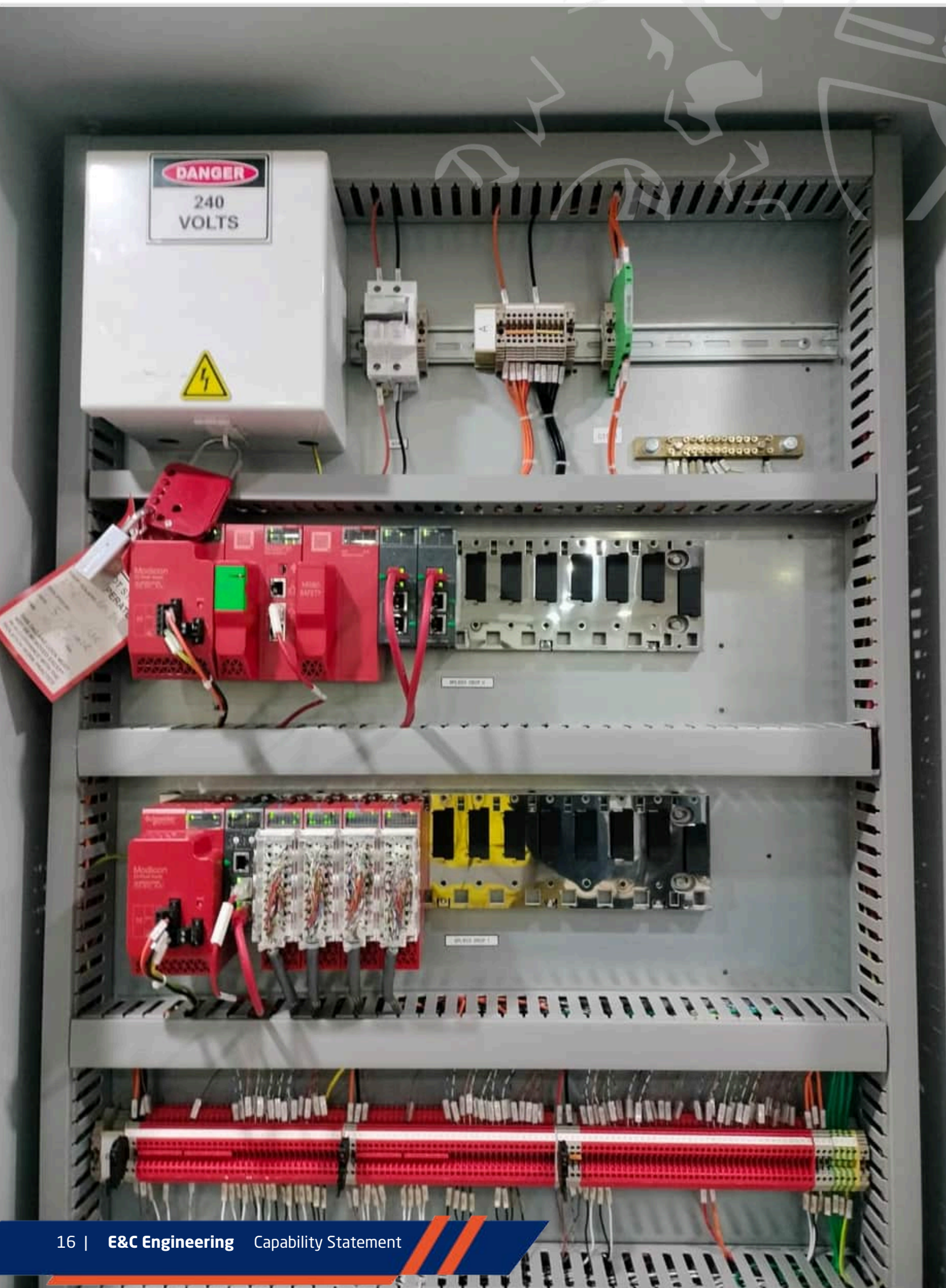
### Fieldbus Design & Configuration

- Profibus DP / PA
- AS-Interface (AS-i)
- DeviceNet / ControlNet
- Modbus RTU / Modbus Plus
- 10-Link
- HART Protocol
- FOUNDATION Fieldbus
- Ethernet-APL

### Industrial Network Device Configuration

- Hirschmann - RSR, RSP, MSP, MAC series
- CISCO - IE3000, IE2000, IE4010
- Rockwell - Stratix 5400, 5410, 5700, 8000, 8300
- Schneider Electric - Connexium, JR900
- Aviat - WTM 3000 series
- Cambium Networks - PTP450, PTP670
- MIRI - AD2000, AD2006
- ELPRO - 905U-G





# FUNCTIONAL SAFETY EXPERTISE

E&C Engineering delivers complete end-to-end functional safety solutions across the entire lifecycle, from concept and design through to verification, commissioning and ongoing support. Combining engineering excellence with practical, site-proven experience, we ensure your safety systems operate reliably and achieve the required Safety Integrity Levels (SIL) in full compliance with AS 61511 and AS 62061.

## CORE CAPABILITIES

### Hazard & Risk Analysis (HAZOP, LOPA)

Facilitating and leading structured risk assessments including HAZOP, PHA and LOPA studies to identify process hazards, assess risks, and define appropriate mitigation strategies.

### Safety Requirements Specification (SRS)

Developing clear, compliant, and auditable SRS documentation that defines functional safety requirements aligned with operational and regulatory expectations.

### Safety Concept & System Architecture

Designing robust and fit-for-purpose safety concepts and architectures that ensure effective risk reduction while maintaining operational efficiency.

### SIF & SIS Design and Implementation

Engineering, configuring, and implementing Safety Instrumented Functions (SIF) within Safety Instrumented Systems (SIS) tailored to achieve required Safety Integrity Levels (SIL).

### SIL Determination, Verification & Validation

Conducting SIL assessments, calculations, and independent verification to confirm that safety systems meet target performance and reliability requirements.

### Safety PLC Programming & Integration

Developing and configuring safety PLC logic, ensuring seamless integration with existing control systems and adherence to functional safety standards.

### Functional safety management, assessment, proof testing, and management of change

- Developing proof test procedures and maintenance plans to sustain ongoing system integrity and performance.
- Ensuring all modifications to systems and processes are controlled, documented, and assessed for safety impacts.

## ADVANCED PROCESS CONTROL

E&C Engineering specialises in designing and refining advanced control strategies to enhance plant efficiency, throughput, and product quality. Using techniques such as Model Predictive Control, Fuzzy Logic, and PID tuning, we identify and eliminate bottlenecks while improving system responsiveness and resource utilisation.

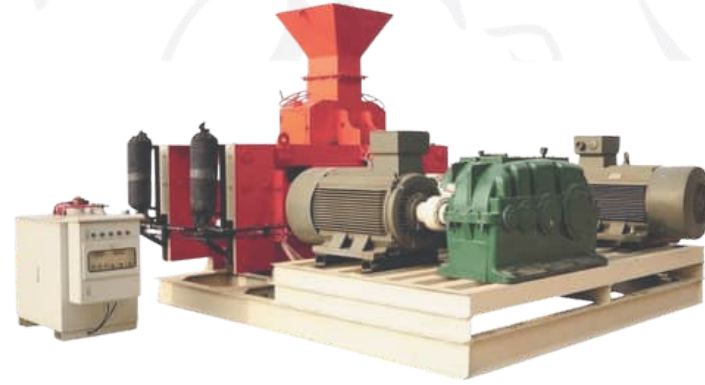


Image: HGPR Optimisation with Fuzzy Control

### CORE CAPABILITIES

#### Control Scheme Design

- Cascade control
- Feed-forward control
- Constraint control
- Smith Predictor control
- Fuzzy logic control
- Model Predictive Control (MPC)
- Plant feed management

#### Control System Optimisation

- PID loop tuning
- Alarm rationalisation
- Process optimisation

## DESIGN DRAFTING

E&C provides tailored electrical design and drafting solutions using the latest 3D software.

Our team delivers accurate, safety-focused layouts for materials handling and processing plants across various industries.

We cover panel layouts, single line diagrams, schematics, fibre and cable routing, 3D modelling, and earthing system design – all customised to meet site-specific and system requirements.



## MOBILE MACHINE INTEGRATION



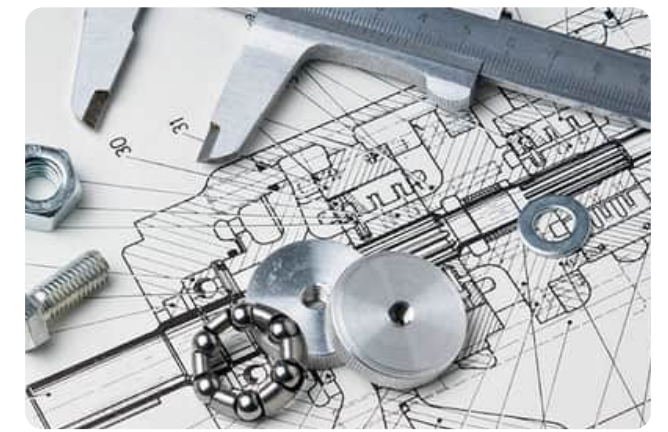
E&C Engineering provides tailored integration solutions for mobile equipment in mining and industrial operations. We connect mobile machines to broader control systems through advanced remote programming, PLC/HMI communication, and engine protocol integration.

### CORE CAPABILITIES

- Remote programming setup
- Truck and small vehicle system integration
- J1939 engine interface design
- PLC/HMI over CAN integration
- Mobile machine HMI programming
- IoT for mobile systems
- System architecture and component selection
- Fleet management and telematics integration
- Wireless communication solutions
- Machine interlocks and safety upgrades
- Remote support and maintenance

## MECHANICAL DESIGN

E&C Engineering offers end-to-end mechanical design services, guiding projects from initial concept through to prototyping, testing, and final implementation. Our team leverages 3D modelling, detailed documentation, and 3D scanning to produce precise and practical designs that meet the specific requirements of industrial operations. Every solution is engineered for reliability, manufacturability, and operational efficiency.



# E&C CASE STUDIES

# TRUSTED BY INDUSTRY LEADERS

E&C Engineering partners with some of Australia's most respected mining and industrial operators. Our clients trust us to deliver reliable, innovative, and safety-focused engineering solutions across complex and high-value projects.



## PEOPLE-DRIVEN PROJECT SUCCESS

Our project success is built on the expertise and dedication of our people. We assign the most qualified professionals to each engagement, ensuring our clients' development goals are fully realised – from concept through to execution.

## OUR COMPLETED PROJECTS

### Pacific Energy - Solomon 200MW Power Station Commissioning Project Value: \$500,000

Successfully commissioned a 200MW power station, delivering reliable system performance and ensuring a smooth, on-time startup with minimal disruption.



### Rio Tinto - Schneider Electric Quantum to M580 PLC Migration Project Value: \$450,000

Completed the migration of legacy control systems to the Schneider Electric M580 platform, improving system reliability, performance, and long-term maintainability.

### Tasman Power - Yandicoogina Remote Switching Panel HMI Upgrade Project Value: \$150,000

Upgraded remote switching panel HMI systems, enhancing user interface functionality and improving operational visibility and control.



## OUR COMPLETED PROJECTS

### Tasman Power (Rio Tinto) - Paraburdoo Profibus PA Device Network Upgrade Project Value: \$150,000

Delivered control system design, FAT, commissioning, and operational support for the Profibus PA network upgrade, ensuring improved reliability and long-term system performance.



### Tasman Power (Rio Tinto) - Ore Product Profiler Instrumentation Design & Integration Project Value: \$100,000

Designed and integrated advanced instrumentation systems to enable accurate ore profiling, enhancing process visibility and product quality control.

### Rio Tinto - Brockman 4 PLC Upgrade Project Value: \$200,000

Upgraded a legacy control system to the Schneider Electric M580S platform, delivering PLC functional safety, SIF integration, control panel build, testing, installation, and commissioning within a two-month schedule.



These highlighted projects represent just a portion of our successful work across the mining and industrial sectors. E&C Engineering has delivered numerous other high-impact solutions, each tailored to meet specific operational challenges. We'd be delighted to share more detailed project insights and discuss how our expertise can support your next initiative – we welcome the opportunity to connect.



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