Substation Construction			
Business Name:		ABN:	
Business Address:			
Contact Person:	Phone:	Email:	

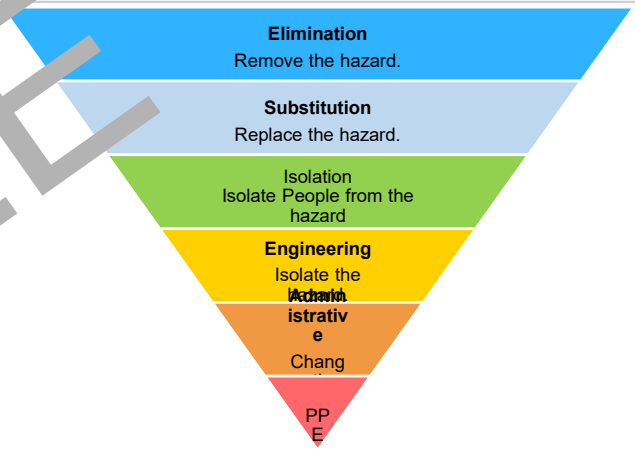
THIS RISK ASSESSMENT IS APPROVED BY THE PCBU OF THE PROJECT		
Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.		
Full Name:		
Signature:	Title:	Date:

CLIENT OR PRINCIPAL CONTRACTOR DETAILS	
Client:	SCOPE OF WORKS
Project Name:	
Project Address:	
Project Manager:	
Contact Phone:	
Date Risk Assessment supplied to Project Manager:	

RISK MATRIX

LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC	SCORE	ACTION
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE		
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Rev before work
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACU	2M MO RATE	Ensure control measures in place.
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 H	1L LOW	Monitor and keep records.

HIERARCHY OF CONTROLS



Risk Rating & Required Action:

4A	Stop work. The risk is intolerable. E inate the hazar redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or hi er-level authorisati is required.
3H	Review and approve additional c rols b ask arts. Senior supervisor sign-off needed.
2M	Ensure all nominated controls are in ace and effe ive. Proceed with caution; monitor conditions.
1L	Proceed, following standard operating procedures Monitor and keep records.

Consequence Scale:

Consequence	People (injury/illness)	Project / Assets	Compliance / Reputation
Catastrophic	Fatality or permanent total disability	project shutdown	Significant regulator intervention; criminal prosecution
Major	Serious injury/illness (hospital > 5 days)	critical delay	Improvement notice; major media coverage
Moderate	Medical-treatment injury; lost-time > 1 day	moderate delay	Minor breach; adverse client comment
Minor	First-aid only, no lost time	negligible delay	Isolated non-conformance
Insignificant	No injury	no schedule impact	Deviation caught and corrected on site

Notes on Hierarchy of Controls:
Remember to apply controls in the preferred order shown by the coloured pyramid:

1. **Eliminate**
2. Substitute
3. Isolate
4. Engineering
5. Administrative
6. PPE

Always document **why** a lower-order control is accepted if elimination or substitution is not reasonably practicable.

aligned with Safe Work Australia's Managing the risk of fatigue at work *(2023) and ISO 45001:2018 clauses 6–8.*

JOB STEP	POTENTIAL HAZARDS	IR	CONTROL MEASURES	RR
SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
1. WHS Governance, Duties and Consultation	• Lack of clear allocation of WHS duties between PCBU, principal contractor, electrical network operator and subcontractors • Inadequate consultation and coordination of activities under WHS Act 2011 leading to unmanaged interface risks between civil, electrical and commissioning teams • Insufficient officer due diligence in monitoring safety performance, resourcing and compliance for substation construction • Poor worker participation mechanisms resulting in under-reporting of hazards, near misses and health concerns • Inadequate review of WHS management system when scope, design or staging of substation works changes	High	• Establish a project-specific WHS governance frame rk that clearly defines roles, responsibilities and accountabilities in line with WHS Act 2011, includi documented PCBU interfaces and delegated authorities • Execute formal WHS interface agreement etween pr pal contractor, client/network operator and key subcontractors outlining responsibilities for e rical ety, isolation control, access permits and emergency management • Implement an officer due di nce program with hedule WHS leadership walks, performance reviews, and documented verif ion of resources, e ence and compliance with statutory requirements • Develop and aintain a P ect W Manag ent Plan for substation construction that aligns with corporate WH MS and rele nt Code f actice (construction work, electrical risks, excavation, confin space etc.) • Esta structu consultation arrangements (WHS committee, elected HSRs, toolbox forums) with standi ag nda ite for high-risk construction work, changes to design and lessons learned • Imple nt a hange anagement procedure requiring WHS risk reassessment and stakeholder nsulta n for esign variations, program compression, new contractors and significant method changes • Inc a ear due diligence reporting to senior management (lag and lead indicators, audit outcomes, egulato otices, serious incident trends) to drive system improvements	Medium
2. Design Management and Engineering Controls	• Design not meeting relevant Australia Standards, Service Rules WHS legislation for electric nd structural safety • Inadequate cons ration constructability, mai ability and de-energisation in substation layout d design, leading to excessive man handling or work at heigh • Insufficient segregation of high-voltage equipment from work areas and public interfaces during construction and future operation • Design changes during construction not subjected to formal WHS risk assessment and engineering review • Omission of permanent fall protection, safe access paths and lifting points on transformers, switchgear and structures • Inadequate design consideration for safe earthing, step and touch potentials,	High	• Implement a formal design management procedure incorporating WHS Act 2011 designer duties, requiring designers to eliminate or minimise risks so far as is reasonably practicable • Apply relevant Australian Standards and industry guidelines (e.g. AS/NZS 3000, AS 2067, AS 7000, AS 1657, AS/NZS 4836, service and network operator standards) within the design review checklist • Conduct multi-disciplinary design reviews, including constructability, electrical safety, maintenance access and emergency egress, with participation from construction, operations and WHS specialists • Use a documented safety in design (SiD) process with risk register capturing key design decisions, residual risks and required administrative controls to be implemented on site • Specify engineered access systems (permanent platforms, ladders, walkways, anchor points and handrails) for all structures and major plant requiring maintenance or inspection • Design substation layout to provide clear segregation between construction zones, energised areas and public boundaries, including fencing, clearances and controlled access points • Include engineered lifting points, padeyes and transport routes for transformers, switchgear and steelwork to reduce reliance on ad-hoc lifting plans and high-risk cranage configurations • Implement a formal change control system for design amendments during construction, requiring hazard identification, WHS risk assessment and documented approval prior to implementation • Ensure earthing system design considers staged construction, temporary bonding requirements and safe work potentials, with documented instructions for construction sequencing	Medium

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	and induced voltages during staged construction			
3. Contractor Management and Procurement	• Engagement of contractors without verification of competency, licences and high-risk work capabilities for substation environments • Inadequate prequalification of suppliers and subcontractors leading to incompatible safety systems or poor WHS performance • Contracts that incentivise program acceleration or cost-cutting without corresponding WHS safeguards • Inconsistent safety expectations and procedures between principal contractor, electrical network operator and subcontractors • Use of plant, equipment and materials that do not comply with Australian standards or project specifications	High	• Implement a formal contractor prequalification process assessing WHS management systems, previous performance, licences, insurance, technical capability and substation experience • Include clear WHS requirements in tender and contract documents, referencing the WHS Act 2011, relevant Regulations and Codes of Practice, and specific electrical utility requirements • Mandate submission and review of contractor WHS management plans and project-specific risk assessments to ensure alignment with the principal contractor's systems • Use performance based contracts with explicit WHS KPIs, right of audit, and provisions for suspension or removal for serious safety breaches • Establish a structured contractor mobilisation process including system integration workshops, alignment on permit-to-work isolation management, incident reporting and emergency arrangements • Require documented verification of qualifications, licences (e.g. electrical licences, high risk work licences) and competency for all critical roles prior to site access • Standardise key WHS procedures across all contractors (e.g. PPE requirements, access control, lock-out tag-out, hot work, confined space entry) and issue as binding project standards • Conduct periodic contractor WHS performance reviews and joint improvement actions, including review of leading indicators and audit outcomes	Medium
4. Competency, Licensing and Training Systems	• Workers and supervisors lacking specific substation HV and switching awareness training • Inadequate verification of licences, high-risk work tickets and electrical authorisations for critical tasks • Supervisors not competent in risk management, safe work method statement (SWMS) implementation and permit-to-work coordination • Insufficient training in emergency response, including electrical contact, arc flash, fire and rescue from height • Failure to provide induction and refresher training for changes in design, plant, procedures or hazards	High	[redacted]	Medium

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			[redacted]	
5. Planning, Scheduling and Interface Management	• Compressed construction schedules increasing pressure to bypass safety procedures or overlap incompatible activities • Poor coordination of civil, structural, electrical and commissioning works leading to congestion and conflicting tasks in limited substation footprint • Inadequate planning for staged energisation, backfeeding and proximity to live infrastructure • Insufficient integration of third-party works (utilities, landowners, public roads) into construction planning • Work at interfaces between existing live substations and new builds not subject to enhanced planning and risk review	High	[redacted]	Medium
6. Electrical Safety and Isolation Management Systems	• Uncontrolled exposure to live or induced high-voltage and low-voltage equipment due to inadequate isolation systems • Confusion over operational control between construction organisation and network operator during staged energisation • Poor management of access permits leading to unauthorised entry into energised or restricted areas	High	[redacted]	Medium

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	• Inadequate procedures for testing, earthing and proving de-energised status of electrical equipment • Failure to manage induced voltages and transferred potentials from adjacent live infrastructure during construction		[redacted]	
7. Plant, Mobile Equipment and Lifting Management	• Inadequate systems for selection, inspection and maintenance of cranes, EWP, telehandlers and earthmoving plant used within constrained substation sites • Poor control over plant movement in proximity to underground services, overhead lines, structu… fencing • Failure to manag…ting operations of transformers, swit…gear and … under a consistent …agem… framework • Inadequate verification of plant operator competencies a… …isk work licences • Insufficient controls for interaction between mobile plant, pedestrians and fixed assets in the substation	High	[redacted]	Medium
8. Site Access, Security and Public Interface	• Unauthorised access by public, visitors or uninducted workers into construction and high-voltage risk areas • Poor coordination between construction site security and	Medium	[redacted]	Low

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	operational substation security, leading to gaps in control • Inadequate management of interfaces with public roads, footpaths and neighbouring properties during deliveries and heavy lifts • Failure to control after-hours works and lone work within a partially energised substation • Insufficient visitor management and briefing processes		[redacted]	
9. Health, Wellbeing and Fatigue Management	• Extended working hours, shift work a[illegible] travel contributing to fatigue and impaired decision-making • Exposure to extre[illegible]emperatures, UV, noise and oth[illegible]environmental stressors impactin[illegible]orker h[illegible]d concentration • Inadequate systems for managing psychosocial risks including rem[illegible] work, high workload, confl[illegible]tween contractors and job insecurity • Insufficient health monitoring for workers exposed to hazardous substances such as silica dust, welding fumes or diesel exhaust • Poor management of fitness for work, including alcohol and other drugs	Medium	[redacted]	Low
10. Documentation, Information and Change Control	• Use of outdated drawings, specifications, switching sheets or procedures on site	Medium		Low

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	• Poor version control leading to conflicting instructions between design, construction and commissioning teams • Inadequate communication of changes to methods, designs or controls to supervisors and workers • Failure to update risk assessments and control measures following incidents, audits or engineering changes		[redacted]	
11. Incident Reporting, Investigation and Corrective Actions	• Under-reporting of incidents, near misses and unsafe conditions due to fear of blame or complex processes • Superficial investigations that fail to identify root causes and systemic failures • Corrective actions not tracked to completion, resulting in repeated events • Failure to notify regulators and client organisations of notifiable incidents in accordance with WHS Act 2011	Medium	[redacted]	Low
12. Emergency Preparedness and Response	• Inadequate planning for electrical contact, arc flash, fire, explosion, gas release or structural collapse events during substation construction	High	[redacted]	Medium

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	• Poor coordination with local emergency services regarding site access, isolation points and specific substation hazards • Emergency equipment (first aid, fire extinguishers, rescue kits) not suitable for electrical environments or not maintained • Workers and supervisors unfamiliar with emergency roles, evacuation routes and communication protocols		[redacted]	

EMERGENCY RESPONSE – CALL 000 FOR EMERGENCIES

Ensure to have an Emergency Management Plan in place as well as adequate numbers of trained first aid staff with easy access to fully stocked first aid kits, rescue equipment, material safety data sheets, adequate access to emergency communication equipment and fire-fighting equipment suitable for all classes of fire and ignition sources.

LEGISLATIVE REFERENCES

RELEVANT LEGISLATION AND CODES OF PRACTICE. DELETE THE LEGISLATIVE REFERENCES FOR ANY STATE THAT ARE NOT APPLICABLE

Queensland & Australian Capital Territory
Work Health and Safety Act 2011
Work Health and Safety Regulations 2011
Legislation QLD: https://www.worksafe.qld.gov.au/laws-and-compliance/work-health-and-safety-laws
Codes of Practice QLD: https://www.worksafe.qld.gov.au/laws-and-compliance/codes-of-practice
Legislation ACT: https://www.worksafe.act.gov.au/laws-and-compliance/acts-and-regulations
Codes of Practice ACT: https://www.worksafe.act.gov.au/laws-and-compliance/codes-of-practice

New South Wales
Work Health and Safety Act 2011
Work Health and Safety Regulations 2025
Legislation NSW: https://www.safework.nsw.gov.au/legal-obligations/legislation
Codes of Practice NSW: https://www.safework.nsw.gov.au/resource-library/list-of-codes-of-practice

Northern Territory
Work Health and Safety (National Uniform Legislation) Act 2011
Work Health and Safety (National Uniform Legislation) Regulations 2011
Legislation NT: https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws
Codes of Practice NT: https://worksafe.nt.gov.au/forms-and-resources/codes-of-practice

South Australia
Work Health and Safety Act 2012 (SA)
Work Health and Safety Regulations 2012 (SA)
Legislation for SA: https://www.safework.sa.gov.au/resources/legislation
Codes of Practice for SA: https://www.safework.sa.gov.au/workplaces/codes-of-practice#COPs

Tasmania
Work Health and Safety Act 2012
Work Health and Safety (Transitional and Consequential Provisions) Act 2012
Work Health and Safety Regulations 2012
Work Health and Safety (Transitional) Regulations 2012
Legislation for TAS: https://worksafe.tas.gov.au/topics/laws-and-compliance/acts-and-regulations
Codes of Practice for TAS: https://worksafe.tas.gov.au/topics/laws-and-compliance/codes-of-practice

Details of permits, licenses or access required by regulatory bodies (add or delete as required):

- Permits from local council
- Authorisation to commence work
- Any required documents.

Victoria
Occupational Health and Safety Act 2004
Occupational Health and Safety Regulations 2017
Legislation VIC: https://www.worksafe.vic.gov.au/occupational-health-and-safety-act-and-regulations
Codes of Practice VIC: https://www.worksafe.vic.gov.au/compliance-codes-and-codes-practice

Western Australia
Work Health and Safety Act 2020
Work Health and Safety Regulations 2022
Legislation Western Australia: https://www.commerce.wa.gov.au/worksafe/legislation
Codes of Practice WA: https://www.commerce.wa.gov.au/worksafe/codes-practice

Safe Work Australia Links
Law and Regulation (All States): https://www.safeworkaustralia.gov.au/law-and-regulation
Model Codes of Practice: https://www.safeworkaustralia.gov.au/resources-publications/model-codes-of-practice

Model Codes of Practice

- Managing noise and preventing hearing loss at work
- Confined spaces
- Labelling of workplace hazardous chemicals
- Managing risks of hazardous chemicals in the workplace
- Welding processes
- First aid in the workplace
- Managing the risk of falls at workplaces
- Hazardous manual tasks
- Managing the risk of falls in housing construction
- Managing electrical risks in the workplace
- Demolition work
- Excavation work
- Work health and safety consultation, cooperation and coordination
- Managing the work environment and facilities
- How to manage work health and safety risks
- Managing risks of plant in the workplace
- Construction work