

Switchboard Installation, Metering and Mains

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

THIS RISK ASSESSMENT IS APPROVED BY THE PCBU ON THIS 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	HIERARCHY OF CONTROLS	
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE			<b>Elimination</b> Remove the hazard.	
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED	<b>Substitution</b> Replace the hazard.	
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Review before work starts.	Isolation Isolate People from the hazard	
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	2M MODERATE	Ensure control measures in place.	<b>Engineering</b> Isolate the hazard	
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 HIGH	1L LOW	Monitor and keep records.	Administrative Change	
								PPE	

  

Risk Rating & Required Action:	
<b>4A</b>	Stop work. The risk is intolerable. Eliminate the hazard or redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or higher-level authorisation is required.
<b>3H</b>	Review and approve additional controls before task starts. Senior supervisor sign-off needed.
<b>2M</b>	Ensure all nominated controls are in place and effective. Proceed with caution; monitor conditions.
<b>1L</b>	Proceed, following standard operating procedures. Monitor and keep records.

  

Consequence Scale:			
Consequence	People (injury/illness)	Project / Assets	Compliance / Reputation
<b>Catastrophic</b>	Fatality or permanent total disability	project shutdown	Significant regulator intervention; criminal prosecution
<b>Major</b>	Serious injury/illness (hospital > 5 days)	critical delay	Improvement notice; major media coverage
<b>Moderate</b>	Medical-treatment injury; lost-time > 1 day	moderate delay	Minor breach; adverse client comment
<b>Minor</b>	First-aid only, no lost time	negligible delay	Isolated non-conformance
<b>Insignificant</b>	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, Roles and Legal Compliance	<ul style="list-style-type: none"> <li>Lack of clear WHS responsibilities for electrical works under WHS Act 2011 and WHS Regulations</li> <li>Directors and senior management not aware of due diligence obligations for high-risk electrical activities</li> <li>Policies not updated to reflect current AS/NZS 3000 (Wiring Rules), AS/NZS 3012 and applicable network service provider (DNSP) requirements</li> <li>Inadequate consultation with workers and health and safety representatives on electrical risk controls</li> <li>Failure to ensure principal contractor, electrical contractor and subcontractors have aligned WHS systems</li> <li>No formal process to verify electrical licence currency and authorisations for switchboard, mains and metering work</li> </ul>	4A	<ul style="list-style-type: none"> <li>Establish and maintain an electrical safety governance procedure aligned with WHS Act 2011, WHS Regulations and state/territory Electrical Safety legislation</li> <li>Define and document WHS roles, responsibilities and authority for PCBU, officers, supervisors, electrical workers and apprentices in relation to switchboard, mains and metering works</li> <li>Implement a documented legal and standards register (AS/NZS 3000, AS/NZS 3012, AS 2067 where applicable, DNSP service and installation rules) which is checked and reviewed and communication to relevant staff</li> <li>Conduct periodic WHS due diligence briefings for officers, including specific obligations for high-risk electrical work and energisation activities</li> <li>Require all electrical workers to provide evidence of current electrical licence, LVR/CPR and any network authorisations before being allocated to tasks</li> <li>Integrate WHS consultation mechanisms (toolbox talks, safety committees, project start-up meetings) to review electrical risk controls before major switchboard or mains activities</li> <li>Include WHS performance and legal compliance checks in internal audits and management review meetings</li> </ul>	3H
2. Design Management and Engineering Coordination	<ul style="list-style-type: none"> <li>Inadequate switchboard and mains design leading to non-compliance with AS/NZS 3000 and DNSP requirements</li> <li>Insufficient fault level, discrimination and protection coordination studies for main and submain switchboards</li> <li>Undersized cables or switchgear ratings leading to overheating, fire, arc-flash risk</li> <li>Poorly coordinated metering and protection schemes resulting in incorrect metering, nuisance tripping or loss of protection</li> <li>Lack of consideration for maintainability and safe access clearances in switchboard and cabinet layout</li> <li>Design changes not formally reviewed, approved or communicated to construction teams</li> </ul>	4A	<ul style="list-style-type: none"> <li>Implement a formal electrical design management procedure requiring competent, qualified designers and documented design briefs for mains, switchboards and metering systems</li> <li>Mandate design reviews and verification against AS/NZS 3000, AS/NZS 61439 (where applicable), DNSP service and installation rules and project specifications before construction release</li> <li>Require documented short-circuit, fault level and protection coordination studies for main switchboards, submains and critical feeders</li> <li>Ensure design includes appropriate segregation, IP ratings, arc-fault mitigation features and clearances for switchboards and electrical racks/cabinets</li> <li>Integrate metering design with DNSP, retailer and client requirements, including CT/VT sizing, sealing points and isolation provisions</li> <li>Apply a management-of-change (MOC) process for any design alteration, ensuring revised drawings, load schedules and protection settings are formally issued and communicated</li> <li>Conduct constructability reviews with supervisors and experienced electricians before finalising switchboard and mains designs</li> </ul>	2M

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3. Project Planning, Staging and Isolation Strategy	<ul style="list-style-type: none"> <li>Insufficient planning for cut-overs from existing live switchboards and mains to new installations</li> <li>Inadequate assessment of supply interruptions and back-feed risks during commissioning and energisation</li> <li>Overlapping activities in switchboard rooms leading to congestion and increased exposure to electrical hazards</li> <li>Failure to plan temporary supplies, generators and temporary boards in accordance with AS/NZS 3012</li> <li>Rushed work due to compressed timeframes for changeovers, increasing likelihood of error</li> <li>Lack of contingency plans for unforeseen faults or delays during energisation and commissioning</li> </ul>	4A	<ul style="list-style-type: none"> <li>Develop a documented project-specific electrical staging plan covering temporary supplies, changeovers, mains installation, metering, and final energisation and commissioning</li> <li>Prepare isolation and changeover strategies, including lock-out/tag-out (LOTO) sequences, back-feed checks and testing requirements, and communicate these through pre-works briefings</li> <li>Schedule high-risk activities (switchboard cut-overs, main service connections, grid connections) during low-load periods with adequate time buffers to avoid rushing</li> <li>Integrate temporary electrical installations plan compliance with AS/NZS 3012, including responsibilities for inspection, testing, tagging and periodic review</li> <li>Coordinate with the DNSP, client and critical operations stakeholders to agree on outage windows, notification requirements and contingency arrangements</li> <li>Use permit-to-work system for energisation, de-energisation and switching activities, including sign-off from competent persons and the principal contractor</li> <li>Include risk-based sequencing to avoid concurrent hot works, confined space work or high-risk construction activities in the same switchboard or mains work area</li> </ul>	2M
4. Competency, Licensing and Authorisation	<ul style="list-style-type: none"> <li>Unlicensed or inadequately supervised workers performing electrical connection, mains installation or switchboard wiring</li> <li>Insufficient training on current wiring rules, DNSP requirements and metering standards</li> <li>Lack of competency in specialised tasks such as CT metering, protection relays and main switchboard assembly</li> <li>Inadequate LVR/CPR training for workers working near energised equipment</li> <li>Supervisors not competent to verify complex terminations, protection settings or commissioning outcomes</li> <li>No formal process to authorise who may perform live testing or switching operations</li> </ul>	4A	<p>[REDACTED]</p>	2M
5. Procurement of Switchboards, Mains and Components	<ul style="list-style-type: none"> <li>Procurement of non-compliant switchboards, MCCs, metering equipment or protective devices</li> </ul>	3H	<p>[REDACTED]</p> <p>[REDACTED]</p>	2M

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	<ul style="list-style-type: none"> <li>• Use of cables, terminations or fittings that are not rated for fault level, temperature or environmental conditions</li> <li>• Supply of counterfeit or untested electrical components</li> <li>• Inadequate verification that factory-built switchboards meet AS/NZS 61439 and project specifications</li> <li>• Late delivery of critical items driving unsafe work-arounds or re-use of old equipment</li> <li>• Lack of documentation from manufacturers (type test certificates, instructions, wiring diagrams)</li> </ul>		[REDACTED]	
6. Documentation, Drawings and Configuration Control	<ul style="list-style-type: none"> <li>• Outdated single line diagrams, schematics or schedules being used for installation and commissioning</li> <li>• Uncontrolled copies of drawings leading to incorrect cable terminations main switch configuration</li> <li>• Changes during construction not marked-up or incorporated into as-constructed documents</li> <li>• No formal process to control protection and metering configuration files, passwords and settings</li> <li>• Inadequate identification and labelling of mains, submains, circuits, meters and protective devices</li> <li>• Loss of test records, inspection reports and commissioning documentation</li> </ul>	1A	[REDACTED]	2M
7. Electrical Isolation, Lock-Out/Tag-Out and Access Control	<ul style="list-style-type: none"> <li>• Failure to fully isolate mains or switchboards before work commences</li> <li>• Bypassing or defeating isolation devices due to poor systems or supervision</li> </ul>	4A	[REDACTED]	2M

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	<ul style="list-style-type: none"> <li>Multiple contractors working in the same board without coordinated isolation controls</li> <li>Uncontrolled access to live or partially completed switchboards, racks or temporary boards</li> <li>Inadequate lock-out/tag-out procedures for shared supplies, generators or grid connections</li> <li>Re-energisation of circuits without confirming all persons are clear and works complete</li> </ul>		[REDACTED]	
8. Working Near Energised Installations and Live Testing Controls	<ul style="list-style-type: none"> <li>Uncontrolled exposure to energised switchboard parts during fault finding, commissioning or meter connection</li> <li>Arc-flash and arc-blast risk during switching or fault conditions on mains submains and main switchboards</li> <li>Unauthorised live work contrary to regulatory requirements</li> <li>Inadequate procedures for mandatory live testing where re-energisation is not practicable (e.g. phasing, fault finding)</li> <li>Inappropriate tools or test instruments for the voltage and fault</li> <li>Electrocution or serious shock due to incorrect test procedures or faulty equipment</li> </ul>	4A	[REDACTED]	2M
9. Temporary Electrical Installations and Construction Power	<ul style="list-style-type: none"> <li>Non-compliant temporary boards and leads supplying construction activities</li> <li>Overloaded temporary switchboards feeding multiple high-demand circuits for tools and plant</li> <li>Inadequate RCD/RCBO protection or failure to test RCDs as required</li> </ul>	3H	[REDACTED]	2M

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	<ul style="list-style-type: none"> <li>• Damage to temporary mains, submains and flexible leads from traffic, sharp edges or environmental exposure</li> <li>• Uncontrolled modification or piggy-backing of temporary boards by different contractors</li> <li>• Unclear ownership and maintenance responsibilities for temporary electrical installations</li> </ul>		[REDACTED]	
10. Integration with Network, Grid and Main Service Panels	<ul style="list-style-type: none"> <li>• Misalignment between site installation and DNSP connection standards leading to unsafe grid connection</li> <li>• Incorrect or unverified main earthing and MEN connections</li> <li>• Back-feed risks from generators, solar PV, battery storage or UPS systems during grid outages or switching</li> <li>• Failure to coordinate with DNSP for isolation, metering configuration and commissioning tests</li> <li>• Incorrect polarity, phase rotation or supply characteristics at main service panels and switchboards</li> <li>• Unclear demarcation responsibilities between DNSP, metering provider and electrical contractor</li> </ul>	4A	[REDACTED]	2M
11. Commissioning, Testing and Verification Systems	<ul style="list-style-type: none"> <li>• Incomplete or inconsistent testing of switchboards, mains, submains and metering circuits</li> <li>• Commissioning under time pressure leading to skipped tests or undocumented defects</li> <li>• Failure to verify operation of RCDs, earth leakage circuit breakers, protective devices and interlocks</li> <li>• Incorrect configuration of meters, protection relays and control wiring</li> </ul>	4A	[REDACTED]	2M

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	<ul style="list-style-type: none"> <li>Lack of independent verification or peer review of test results</li> <li>Re-energisation of defective or incomplete installations</li> </ul>		[REDACTED]	
12. Existing Installations, Refurbishment and Fuse Box Relocation	<ul style="list-style-type: none"> <li>Unknown condition of existing switchboards, fuse boxes and mains creating unexpected energised parts or degraded insulation</li> <li>Hidden or undocumented circuits when working on existing boards or relocating fuse boxes</li> <li>Disturbance of asbestos-containing materials in older switchboard panels or meter backs</li> <li>Limited physical space and poor access around existing switchboards increasing manual handling and contact risks</li> <li>Inadvertent disconnection of essential services or life-safety systems during cut-over</li> <li>Legacy protection and earthing systems not compatible with new installations</li> </ul>	3H	[REDACTED]	2M
13. Environmental, Fire and Emergency Preparedness	<ul style="list-style-type: none"> <li>Switchboards, mains and cables exposed to moisture, dust, heat or corrosive environments beyond their rating</li> <li>Inadequate segregation between electrical installations and fire risks (combustibles, other services)</li> <li>Failure of electrical systems contributing to fire initiation or spread</li> <li>Poor emergency response arrangements for electrical incidents, including electric shock or arc-flash</li> </ul>	3H	[REDACTED]	2M

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	<ul style="list-style-type: none"> <li>Inadequate access and egress routes around main switchboards and metering panels in an emergency</li> <li>Emergency isolation points not clearly identified or tested</li> </ul>		[REDACTED]	
14. Contractor Management and Interface Coordination	<ul style="list-style-type: none"> <li>Multiple contractors undertaking electrical and non-electrical work around switchboards and mains without coordination</li> <li>Subcontractors operating under different WHS standards or procedures</li> <li>Unclear delineation of responsibilities for testing, commissioning and defects</li> <li>Informal instructions or variations leading to unapproved changes in electrical scope</li> <li>Communication breakdown between design, construction and maintenance parties</li> <li>Inadequate verification of subcontractor competence for switchboard and mains installation</li> </ul>	3H	[REDACTED]	2M
15. Inspection, Audit, Incident Management and Continuous Improvement	<ul style="list-style-type: none"> <li>Systemic issues in electrical works not detected due to lack of structured inspections and audits</li> <li>Repeat non-conformances in switchboard and mains installation quality</li> <li>Under-reporting of electrical near misses, shocks or equipment failures</li> <li>Failure to investigate and learn from electrical incidents or defects identified during commissioning</li> <li>Drift from procedures over time, leading to normalisation of deviance</li> <li>Inadequate monitoring of corrective and preventive actions</li> </ul>	3H	[REDACTED]	2M

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SAMPLE

**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>

**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>

**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-codes-of-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>

**Northern Territory**

Work Health and Safety (National Uniform Legislation) Act 2011  
 Work Health and Safety (National Uniform Legislation) Regulation 2011  
 Legislation NT: <https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws>  
 Codes of Practice NT: <https://worksafe.nt.gov.au/factsheets-and-resources/codes-of-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>

**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>

**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

**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.