Solar Panel Cleaning			
Business Name:		ABN:	
Business Address:			
Contact Person:	Phone:	Email:	

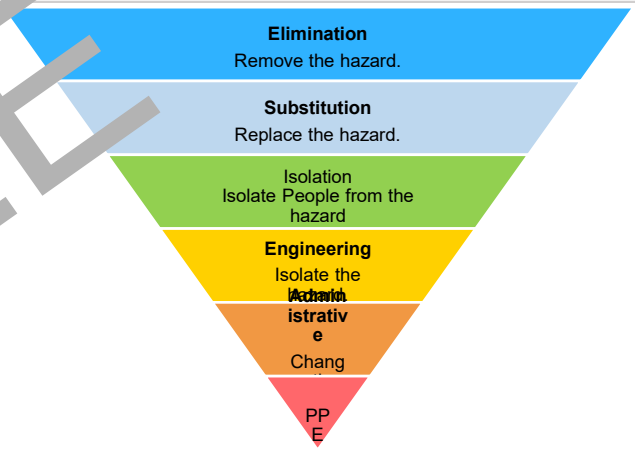
THIS RISK ASSESSMENT IS APPROVED BY THE PCBU OF THE PROJECT		
Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.		
Full Name:		
Signature:	Title:	Date:

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. Governance, WHS Duties and Legal Compliance	• Failure of officers and PCBUs to understand and discharge due diligence obligations under WHS Act 2011 in relation to solar panel cleaning activities • Absence of a documented WHS management system specific to working at height and electrical risks associated with photovoltaic (PV) panel cleaning • Inadequate consultation with workers and Health and Safety Representatives (HSRs) on solar cleaning methods, equipment and changes to processes • Lack of formal processes to identify, assess and control new or changed risks arising from new rooftop configurations, inverters or cleaning technologies • Inadequate contractor management framework for engaging third-party sola cleaning providers or subcontractors	High	• Establish and maintain a WHS management system aligned with WHS Act 2011, WHS Regulations and relevant Codes of Practice (e.g. Managing the Risk of Falls; Managing Electrical Risks in the Workplace), explicitly referencing PV panel cleaning operations • Define and document officer due diligence activities (e.g. WHS performance reporting, site safety walk-throughs, governance meetings) with specific inclusion of solar installation and cleaning risks • Implement a formal WHS legal register capturing relevant Australian and jurisdictional WHS legislation, standards and guidance for solar and electrical work, with annual review and sign-off by management • Create a documented WHS policy and specific Solar Panel Cleaning Risk Management Procedure that covers planning, authorisation, equipment selection, and review requirements • Develop and enforce a contractor and subcontractor WHS management standard requiring pre-qualification, evidence of competency, insurances, SWMS, and alignment with the organisation's WHS procedures • Establish structured consultation mechanisms (toolbox talks, WHS committee meetings, HSR engagement) that specifically address PV cleaning hazards, near misses and proposed changes to equipment or methods • Require documented risk assessments and Safe Work Method Statements (SWMS) for solar cleaning activities above 2 m or where electrical risks are present, with a defined process for review and approval prior to work • Implement a WHS audit and inspection program that includes targeted audits of rooftop and solar cleaning activities, contractor controls and adherence to procedures • Ensure incident notification, investigation and corrective action processes explicitly capture PV panel and rooftop incidents, including lessons learnt and systemic corrective action tracking	Medium
2. Design, Procurement and Installation of PV Systems and Access Infrastructure	• Solar PV systems designed or installed without consideration for safe access, egress and maintenance/cleaning requirements • Procurement of PV panels, mounting systems and inverters without ensuring compatibility with safe cleaning methods (e.g. load rating, walkability, cleaning chemical limitations) • Lack of engineered fall-prevention and roof-edge protection integrated into initial building or solar system design • Inadequate documentation from installers regarding structural load limits, no-step zones and fixing integrity for areas adjacent to panels	High	• Embed WHS and maintainability requirements into procurement specifications for PV systems, including mandatory consideration of safe cleaning access, anchor points and permanent edge protection where practicable • Require solar designers and installers to provide evidence of compliance with relevant Australian Standards (e.g. AS/NZS 5033, AS/NZS 3000) and building codes, including documentation about safe access and cleaning limitations • Mandate that new PV installations undergo a pre-acceptance safety review involving WHS, facilities management and engineering to confirm that access paths, anchorages and fall-prevention measures are fit for purpose • Specify in procurement contracts that suppliers provide detailed product information, including manufacturer's cleaning and maintenance recommendations, load and temperature limits, and any chemical compatibility restrictions • Ensure design reviews consider roof type, pitch, fragility and drainage to minimise reliance on high-risk access methods (e.g. ladders, temporary edge protection) during cleaning	Medium

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	• Use of non-compliant or poorly documented PV equipment sourced from suppliers without adequate technical and WHS information		• Require drawings and as-built documentation clearly marking no-step zones, fragile surfaces, penetrations, skylights, and safe access routes for cleaners • Implement a change-management process for retrofits or capacity expansions (additional strings, optimisers, batteries) that reassesses safe cleaning access and updates documentation • Include in contracts the requirement for handover of engineered certification for anchor points, walkways, guardrails and other permanent fall-prevention systems	
3. Access, Working at Height and Fall-Prevention Systems	• Inadequate or ad hoc systems for accessing roofs (ladders, access hatches, EWP use) during PV cleaning • Absence or poor maintenance of permanent fall-prevention systems such as guardrails, walkways, anchor points and static lines • Unclear organisational rules regarding exclusion zones near roof edges, skylights and brittle roofing • Lack of a systematic approach to verifying structural integrity of roofs used for access during cleaning activities • No formal process for inspecting, maintaining and recertifying fall-arrest equipment used by cleaners	High	• Develop and implement a Working at Heights Management Procedure covering planning, authorisation, selection of access method (ladders, EWP, permanent access ways) and supervision arrangements specific to PV cleaning • Establish access design standards for sites with PV arrays, prioritising permanent ladders, hatches, walkways and guardrails to eliminate or minimise reliance on temporary measures • Implement a formal register for fall-prevention and fall-arrest systems (anchor points, static lines, harnesses, lanyards), including inspection frequencies and recertification requirements by competent persons • Define and communicate organisational rules for roof access, safe approach distances to edges, requirements around skylight protection, and controls for brittle or asbestos-containing roofing materials • Require pre-work roof access risk assessments that consider roof condition, weather, pitch and load capacity, with criteria for prohibiting work when controls are inadequate • Ensure selection and use of Elevating Work Platforms (EWPs) is governed by a documented EWP management procedure including operator competency, rescue planning, wind and weather limits and traffic separation • Provide documented site plans that show designated access points, fixed ladders, anchor locations, walkways and restricted zones, and ensure they are accessible to all internal staff and contractors • Include periodic independent audits of working at height controls at solar sites to verify adherence to organisational procedures and legislative requirements	Medium
4. Electrical Safety and PV System Isolation Management	• Inadequate systems for controlling electrical risks associated with live PV arrays that continue to generate DC under light • Lack of clear organisational procedures for isolation, verification of de-energisation and re-energisation of PV systems prior to cleaning where practicable • Insufficient delineation of roles between licensed electricians and cleaners regarding what electrical work is permitted	High	[redacted]	Medium

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	• Inconsistent lock-out tag-out practices for inverters, isolators and associated electrical equipment • Failure to manage induced voltages, damaged wiring, or compromised insulation that may be exposed during cleaning activities		[redacted]	
5. Water Quality, Chemical Use and Environmental Management	• Use of incompatible cleaning agents or untreated water that may damage PV panels, frames or wiring insulation over time • Lack of controls for chemical storage, handling and disposal related to panel cleaning additives or detergents • Environmental contamination from uncontrolled wastewater run-off, particularly on large commercial roofs • Inadequate assessment of slip hazards arising from water overspray, algae growth and residual detergents on access paths and ladders • Absence of procedures for using demineralised water systems or filtration units that may operate under pressure	Medium	[redacted]	Low
6. Competency, Training and Supervision	• Workers and contractors performing PV cleaning without adequate training in working at height, electrical awareness and PV system characteristics	High	[redacted]	Medium

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	• Inconsistent competency requirements across sites and contractors, leading to variable safety standards • Lack of supervision or verification of competency for new or young workers involved in rooftop tasks • Insufficient training on emergency procedures, including rescue from heights and electrical incident response • No structured refresher training program to maintain competencies over time		[redacted]	
7. Planning, Scheduling and Weather/Journey Management	• PV cleaning planned [illegible] adequate consideration of weather, temperature, wind and light conditions • Rushed work due to scheduling, leading to shortcuts in isolation, access set-up or risk assessments • Fatigue risks associated with early starts, long travel distances between sites and prolonged work in hot or reflective environments • Insufficient journey management for remote or regional PV installations, including poor communication coverage • Lack of formal criteria for cancelling or postponing cleaning due to adverse weather or elevated risk factors	High	[redacted]	Medium

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			[redacted]	
8. Equipment Selection, Inspection and Maintenance (Cleaning and Access Equipment)	• Use of unsuitable or poorly maintained cleaning equipment (e.g. high-pressure washers, abrasive tools) that may damage panels or increase electrical and fall risks • Lack of systematic inspection and maintenance schedules for ladders, EWPs, harnesses, water-fed poles and hoses • No standardisation of equipment across the organisation, leading to inconsistent safety features and user confusion • Inadequate control of defective or out-of-service equipment, allowing it to be inadvertently used • Insufficient consid[redacted]ation of ergonomic design, leading to [redacted]petitive strain injuries from poorly [redacted]alanc[redacted] heavy hoses	High	[redacted]	Medium
9. Health, Hygiene and Psychosocial Risk Management	• Heat stress, dehydration and UV exposure during rooftop PV cleaning, particularly in Australian summer conditions • Musculoskeletal disorders from repetitive movements, awkward postures, manual handling of equipment and climbing • Inadequate access to drinking water, shade and rest facilities at remote or rooftop locations • Psychosocial hazards including time pressure, isolated work, and stress	High	[redacted]	Medium

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	associated with meeting production or contract deadlines • Insufficient organisational systems for reporting and managing early signs of heat strain, fatigue or musculoskeletal discomfort		[redacted]	
10. Contractor and Subcontractor Management	• Reliance on external solar cleaning contractors without robust evaluation of their WHS capability • Inconsistent expectations and controls across multiple subcontractors and labour-hire providers • Poor communication of site-specific hazards, emergency procedures, PV system details to contractors • Lack of monitoring and verification that contractors are implementing the SWMS and risk controls effectively • Unclear allocation of WHS responsibilities between host PCBU and contracting PCBUs under WHS Act 2011	High	[redacted]	Medium
11. Information, Documentation and Change Management	• Outdated or missing documentation on PV array layout, roof access points,	Medium		Low

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	structural limitations and isolation locations • Lack of controlled document management for procedures, SWMS, risk assessments and training records related to PV cleaning • Unmanaged changes to PV system configuration, roof structures or access systems creating new or increased risks • Inadequate communication of lessons learnt from incidents, audits or near misses across all teams and contractors • Poor record-keeping undermining the ability to demonstrate due diligence and compliance with WHS Act 2011		[redacted]	
12. Emergency Preparedness and Incident Management	• Inadequate plan[redacted]g for res[redacted] workers who fall or [redacted]ended i[redacted] harnesses during rooftop PV cleanin • Lack of clear response procedu[redacted] for electrical incidents, inclu[redacted]ctric shock or arc flash related to PV systems • Insufficient coordination with emergency services for access to roofs, isolation of PV systems and casualty retrieval • Inadequate first aid equipment, training and communication systems for workers on remote or elevated locations • Poor incident reporting and investigation processes leading to repeated PV cleaning-related events	High	[redacted]	Medium

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			[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