



Climate Change

Greenhouse-gas mitigation, physical climate risk and adaptation.

How to use this handbook

This volume is the practitioner (site and technical) reference for the Climate Change factor. It sets out what Climate Change governs, every assessment element with its own process and controls, the Queensland and Commonwealth instruments that apply, and the primary metric for each element. It is decision support, not legal advice or a substitute for a site-specific assessment — confirm every regulatory point against the current instrument and, where a threshold is close or a critical exception applies, obtain specialist and legal review.

FIELD	DETAIL
Volume	11 of 17 — Environmental Knowledge Handbooks
Factor	Climate Change
Jurisdiction	Queensland, Australia
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Prepared by	QTEN — Queensland Technical Excellence Network
Review	SME, spatial and legal review before reliance

Executive overview

Climate change now sits on the project ledger in two ways: the emissions a project causes, and the physical risk the climate poses to it. Emissions accounting and reduction run to the Commonwealth National Greenhouse and Energy Reporting Act 2007 and the Safeguard Mechanism for large emitters, while physical risk — heat, flood, cyclone — is managed through the Planning Act 2016 natural-hazard framework and adaptation practice. The site-manager task is to measure the emissions boundary honestly, reduce in line with commitments, and design and operate for the physical climate the asset will actually face.

Scope

Climate Change resolves into four secondary factors — Greenhouse Gas Mitigation; Physical Climate Risk; Climate Adaptation and Resilience; Transition and Disclosure — and twenty assessment elements. Every element is set out below with its own process and controls and its primary decision metric; identifiers are shared with the companion Knowledge System workbook and the platform calculators.

Assessment elements & process

Each assessment element below carries what it governs and its key pressures, the appropriate site process and controls, and the primary metric that measures it. Work every element that your project engages.

ASSESSMENT ELEMENT	WHAT IT GOVERNS & KEY PRESSURES	PROCESS & CONTROLS
Greenhouse Gas Inventory and Boundaries <i>Inventory completeness and GHG emissions</i>	GHG inventory boundary and completeness. Pressures: boundary gaps, poor activity data.	Define the boundary; quantify by scope with recognised factors; assure data; maintain completeness.
Scope 1 Emissions <i>Scope 1 GHG emissions</i>	Scope 1 direct emissions. Pressures: combustion, fugitive and process emissions.	Quantify Scope 1 sources; reduce at source; monitor; verify against the inventory.

ASSESSMENT ELEMENT	WHAT IT GOVERNS & KEY PRESSURES	PROCESS & CONTROLS
Scope 2 Emissions <i>Location- and market-based Scope 2 emissions</i>	Scope 2 electricity emissions (location and market based). Pressures: grid intensity, procurement choices.	Quantify Scope 2 both methods; improve efficiency; procure renewable electricity; track reduction.
Scope 3 and Value-chain Emissions <i>Scope 3 coverage and emissions</i>	Scope 3 and value-chain emissions coverage. Pressures: unquantified upstream/downstream emissions.	Screen and prioritise Scope 3 categories; quantify material ones; engage suppliers; expand coverage.
Emissions Reduction and Decarbonisation <i>Decarbonisation progress</i>	Emissions reduction and decarbonisation progress. Pressures: abatement cost, technology readiness.	Build a marginal-abatement pathway; deliver efficiency, electrification and fuel-switching; track against trajectory.
Extreme Heat and Heatwaves <i>Heat exposure and resilience</i>	Extreme heat and heatwave exposure and resilience. Pressures: rising temperatures, worker and asset heat stress.	Assess heat exposure; design for heat; protect workers and assets; monitor and adapt.
Flooding and Extreme Rainfall <i>Flood risk and annualised consequence</i>	Flood and extreme-rainfall risk and consequence. Pressures: increased rainfall intensity, floodplain change.	Assess flood exposure to current and projected events; set flood-immune levels; provide capacity and emergency response.
Cyclones, Storms and Wind <i>Cyclone and wind resilience</i>	Cyclone, storm and wind resilience. Pressures: severe wind, storm damage.	Design to wind and storm criteria; protect and secure assets; plan emergency response; monitor resilience.
Drought, Bushfire and Water Stress <i>Drought, fire and water-stress risk</i>	Drought, bushfire and water-stress risk. Pressures: drought, fire weather, water scarcity.	Assess drought/fire/water-stress risk; manage fire and water security; provide resilience; monitor.
Sea-level Rise, Coastal Hazards and Erosion <i>Coastal hazard exposure</i>	Sea-level rise, coastal hazard and erosion exposure. Pressures: inundation, erosion, storm tide.	Assess coastal hazard to planning horizons; set setbacks and levels; adapt; monitor exposure.
Climate Risk and Opportunity Assessment <i>Climate risk and opportunity rating</i>	Climate risk and opportunity assessment. Pressures: unassessed physical and transition risk.	Assess physical and transition risk and opportunity; rate materiality; integrate into decisions.
Climate Scenarios and Projections <i>Scenario coverage and decision use</i>	Climate scenarios and projections use. Pressures: single-scenario planning, unused projections.	Use multiple scenarios and projections; test decisions; document scenario coverage and use.
Asset and Infrastructure Resilience <i>Asset resilience maturity</i>	Asset and infrastructure resilience. Pressures: assets exposed to physical climate change.	Assess asset resilience; design and retrofit for projected climate; prioritise critical assets; monitor maturity.
Nature-based Adaptation and Ecosystem Resilience <i>Nature-based adaptation outcome</i>	Nature-based adaptation and ecosystem resilience. Pressures: loss of protective ecosystems.	Use nature-based adaptation (wetlands, vegetation); protect protective ecosystems; monitor outcome.
Community, Health and Social Resilience <i>Community and health resilience</i>	Community, health and social resilience. Pressures: vulnerable people and services exposed to climate.	Assess community and health vulnerability; coordinate resilience measures; support vulnerable groups.
Transition Risk and Opportunity <i>Transition risk and opportunity rating</i>	Transition risk and opportunity. Pressures: policy, market and technology shifts.	Assess transition exposure and opportunity; position for low-carbon markets; manage stranded-asset risk.
Climate Transition Planning <i>Transition plan delivery</i>	Climate transition planning and delivery. Pressures: no credible plan, weak delivery.	Prepare a transition plan with targets and actions; resource and deliver it; track delivery.

ASSESSMENT ELEMENT	WHAT IT GOVERNS & KEY PRESSURES	PROCESS & CONTROLS
Climate Metrics, Targets and Carbon Budgets <i>Target and carbon-budget performance</i>	Climate metrics, targets and carbon budgets. Pressures: weak targets, no budget.	Set science-aligned targets and a carbon budget; track performance; correct on divergence.
Climate-related Financial Disclosure <i>Disclosure completeness and connectivity</i>	Climate-related financial disclosure. Pressures: incomplete or disconnected disclosure.	Prepare disclosure (governance, strategy, risk, metrics); connect to financials; assure completeness.
Climate Governance, Assurance and Adaptive Management <i>Climate governance and assurance maturity</i>	Climate governance, assurance and adaptive management. Pressures: weak oversight, no assurance.	Establish climate governance and assurance; review performance; correct and adapt; report maturity.

Regulatory mapping

The instruments most often engaged for Climate Change. Confirm currency and application to the specific site and activity before relying on any entry.

INSTRUMENT	JURIS.	WHAT IT DOES	TYPICAL TRIGGER
National Greenhouse and Energy Reporting Act 2007	Cth	Mandatory emissions and energy reporting for covered entities.	Meeting NGER reporting thresholds.
Climate Change Act 2022	Cth	National emissions-reduction targets.	Aligning targets and disclosure.
Safeguard Mechanism	Cth	Baselines and obligations for large emitting facilities.	Operating a covered facility above the threshold.
Planning Act 2016 & State Planning Policy	Qld	Natural-hazard (flood, bushfire, coastal) planning outcomes.	Development in a hazard area.
GHG Protocol / ISO 14064	Standard	Recognised inventory and quantification standards.	Preparing an emissions inventory.

Assurance & evidence

- **Source currency.** Confirm the instruments, criteria and trigger values cited are current and correctly applied to the site and activity.
- **Records.** For each element engaged, retain the assessment, the controls applied, monitoring against the metric, and any statutory notifications — the evidence that the process was followed.
- **Independent review.** Interpretations, threshold decisions and critical exceptions are reviewed by a suitably qualified person before reliance.

TALK TO QTEN

Managing climate change on a live project? QTEN helps Queensland clients turn this handbook into a defensible, evidence-backed position — scoping, assessment, controls, approvals and review. Bring us your site and we will help you get it right, and prove it.
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