Department of Planning, Housing and Infrastructure

NSW GOVERNMENT

Climate Change Adaptation Plan

Crown Lands 2025–2026

October 2024

dphi.nsw.gov.au

Acknowledgement of Country

The Department of Planning, Housing and Infrastructure acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land, and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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Climate Change Adaptation Plan

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Introduction

This Climate Change Adaptation Plan outlines the actions that Crown Lands within the NSW Department of Planning, Housing and Infrastructure will take to mitigate the risks and impacts associated with climate change and help us adapt to climate change over the next two years.

The adaptation plan brings together existing and new programs of work. It aims to include and reinforce climate as a factor we consider in our decisions. The plan is part of our evolving response to climate change, which will continue to strengthen over time.

We have developed this adaptation plan as a commitment under the *Crown land 2031 First Action Plan*. It supports the delivery of *Crown Land 2031, the State Strategic Plan for Crown land*.

The adaptation plan is aligned with the NSW Climate Change Adaptation Strategy, and the National Climate Resilience and Adaptation Strategies.

We are working separately to address climate change mitigation (this includes NSW Government commitments to reach net zero for carbon emissions).

Objectives of this plan

For Crown Lands, adapting to changes in climate will help mitigate harmful impacts on our land and assets, which are a highly valued part of thriving communities. Adaptation must become part of our programs and routine decision-making to safeguard the public value of Crown land.

The key objectives of this foundational adaptation plan are to:

- **build climate resilience across the Crown land estate**
  - We will build climate resilience by proactively completing on-ground works that lessen the effects of climate change
- **develop our capacity, capability and systems to better respond to the impacts of climate change**
  - We will increase the capacity and capability of our staff to identify and respond to climate impacts and risks.
  - We will integrate climate data within our systems to support us to make informed decisions.
- **include climate change in evidence-based decisions made about the Crown estate**
  - We will ensure we always consider climate change in key decisions about land and asset use.

What is Crown land?

Crown land is held by the NSW Government on behalf of the public. It is a unique and complex estate covering about 38% of the state. It comprises rangelands, forests, grasslands and mountainous terrain through to waterways, expansive stretches of coastline and the marine estate beyond our shores.

The Crown estate – land, water, cultural heritage, biodiversity and infrastructure – is diverse and can be used in many ways. The government and community work in partnership to manage it. Crown Lands currently directly manages more than 17,000 reserves. We also work with a network of community organisations such as local councils, corporations and volunteer boards that currently manages 8,200 reserves.

Much of the Crown estate is managed under leases and licences, especially in the far west of NSW. Crown land contributes to economic productivity and the social fabric of communities. It is vital for the conservation and sustainability of the environment and cultural connections across NSW.

Climate projections for NSW

The impacts of climate change are becoming increasingly clear across the state. The change in climate will affect how our community can use and access Crown land in the future.

In recent years, NSW has seen record drought, fire, flood, and storm events. Temperatures have increased and sea levels have risen because of climate change. Figure 1 shows the regional impacts of climate change across the state.[1,2]

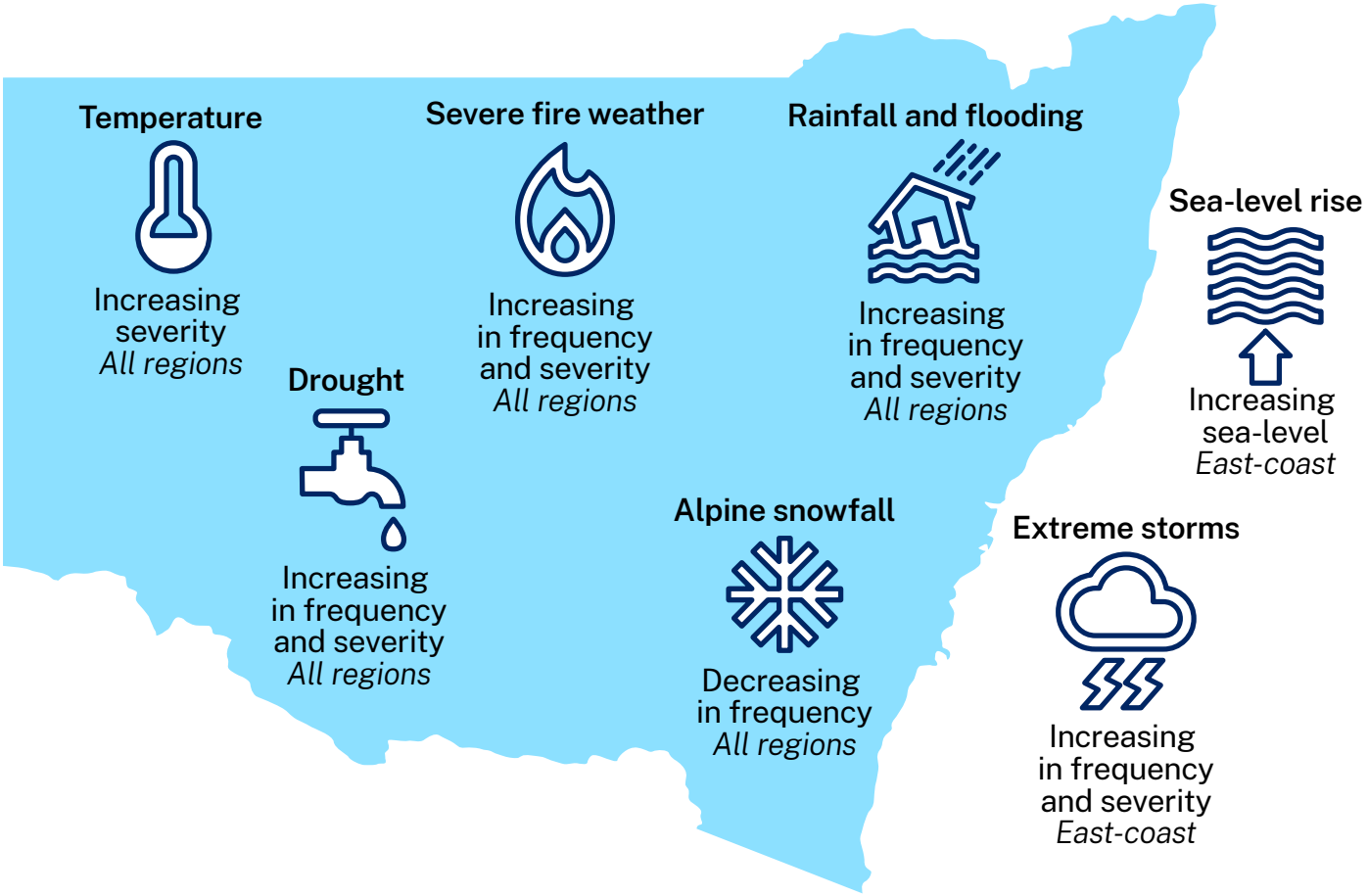

Figure 1. Projected climate change across NSW

Dive deeper into the impacts of climate change on each NSW region by exploring the NSW Government's AdaptNSW website.[3] Resources include the Regional Climate Change Snapshots and the Enabling Regional Adaptation Reports.

Regional differences in climate projections will mean a diverse range of climate risks for Crown lands across different locations in the state.

Table 1 gives a high-level overview of the projected climate changes of the state. These are based on projections from NARCliM1.0, using the A2 emissions scenario (the most likely scenario at that time).[4]

Table 1. Projected climate changes across different regions in NSW[5,6]

Region	Projected climate changes (2070)
North Coast[7]	• All temperature variables (average, maximum, and minimum) will rise. More hot days and fewer cold nights are expected. Heatwaves will intensify and last longer. • Autumn and spring rainfall will increase in both near and far futures. Winter rainfall will decrease in both near and far futures. Summer rainfall will decrease initially, but increase in the far future. • Summer, autumn, and winter will see increased fire risk. • The sea level is expected to rise by 21 cm to 35 cm in 2070 and continue rising, leading to coastal inundation and erosion.
Metropolitan (Sydney and Hunter region)[8]	• All temperature variables (average, maximum, and minimum) will rise, leading to more hot days and fewer cold nights. • Autumn rainfall (and summer rainfall at the coast) will increase in both near and far futures. Spring rainfall will decrease in the near future, while winter projections are less clear. • The fire risk, based on the Forest Fire Danger Index, will rise during summer and spring. • The sea level is expected to rise by 21 cm to 35 cm in 2070 and continue rising, leading to coastal inundation and erosion.
South-West[9]	• All temperature variables (average, maximum, and minimum) will rise. More hot days and fewer cold nights are expected. Heatwaves will intensify and last longer. • Autumn and spring rainfall will increase in both near and far futures. Winter rainfall will decrease in both near and far futures. • There will be increased fire risk during summer, autumn, and winter.
North-West[10]	• All temperature variables (average, maximum, and minimum) will rise, leading to more hot days and fewer cold nights. • Autumn rainfall will increase in both near and far futures. Winter rainfall will decrease in the near future, while summer rainfall will decrease initially, but increase in the far future. • The fire risk, based on the Forest Fire Danger Index, will rise significantly.
Far West[11]	• All temperature variables (average, maximum, and minimum) will rise. More hot days and fewer cold nights are expected. Heatwaves will intensify and last longer. • Autumn and summer rainfall will increase, while winter will decrease in both near and far futures. Spring and winter rainfall will decrease initially, but may change in the far future. • There will be increased fire risk during both near and far futures. Average and severe fire weather indices will rise.
South-East[12]	• All temperature variables (average, maximum, and minimum) will rise. More hot days and fewer cold nights are expected. Heatwaves will intensify and last longer. • Autumn rainfall will increase in both near and far futures. Winter and spring rainfall will decrease in both near and far futures. • There will be increased fire risk during summer, autumn, and winter. • The sea level is expected to rise by 21 cm to 35 cm in 2070 and continue rising, leading to coastal inundation and erosion.

How government is addressing the effects of climate change

NSW initiatives

The NSW Government has committed to tackling climate change, focusing on both mitigation and adaptation strategies. The government aims to maximise the social, environmental, and economic wellbeing of NSW in the context of a changing climate.[13]

The government also plans to position NSW as a leader in adaptation and resilience. It will do this by developing robust, trusted metrics and information on climate change risk. This includes publishing regularly updated and improved local-level climate projections, as well as investing in research to understand the long-term impacts.

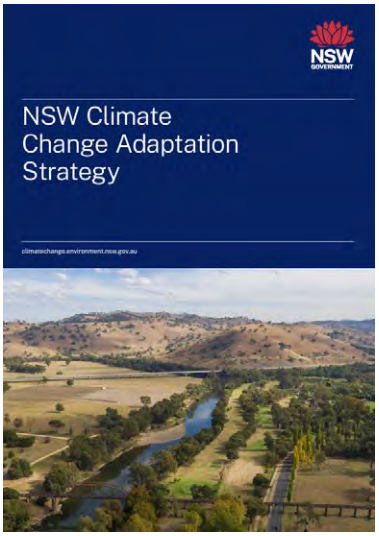

Figure 2. NSW Climate Change Adaptation Strategy (2022)

Federal initiatives

The Australian Government wants to collaborate with state and local government, businesses and communities to build resilience, generate economic opportunities, and better protect natural assets. It also aims to improve climate information and services by providing access to the most up-to-date information and scientific climate data.[14]

Existing initiatives within Crown Lands

Crown Lands is already addressing climate change impacts by:

- **managing coastal hazards and climate change risks on Crown land** through the Coastal Crown Lands Guidelines, in line with the NSW Government's Coastal Management Framework
- **contributing to bushfire planning and preparedness statewide** by taking part in the State Bush Fire Coordinating Committee and all 52 local bushfire management committees, and by preparing plans for bushfire risk management, fire access and fire trails
- **establishing and maintaining asset protection zones on Crown land** in bushfire-prone areas and working with fire authorities to identify and prepare Crown land sites for hazard-reduction burns
- **delivering our annual program of fire trail upgrade and maintenance works across the state** In partnership with the NSW Rural Fire Service, we annually inspect approximately 3,100 km of fire trails across NSW. This includes annual aerial inspections of fire trails on Crown land.
- **supporting implementation of the NSW State Emergency Management Plan 2023**
- **providing disaster recovery support and emergency funding for Crown land managers**
- **establishing the Emergency Management Steering Committee** to capture what we have learnt from disasters.

Figure 4. Water flows over Brewarrina fish traps. A changing climate will impact our natural assets and may harm Country.

Key climate risks on Crown land

Crown land plays a central role in helping to create and support prosperous and resilient communities. It is essential to community life and wellbeing as it provides public open space, showgrounds, community facilities, sporting grounds, caravan parks, cemeteries, access to Country and environmental and heritage protection.

Climate change will affect how communities can use and access Crown land now and in the future. Without adaptation planning in place, this will directly affect the public value of Crown land. It will also affect our ability to maintain and manage the land.

As a first step in developing this plan, we needed to understand key climate risks. We held workshops with regional Crown Lands staff to identify climate risks affecting each unique region within NSW. We then ranked the risks based on risk ratings. We combined risk-rating scores for each region to identify the highest risks statewide in the short term (to 2030) and in the longer term (to 2070).

We have identified the following climate change impacts as priority risks for Crown Lands.

What it will mean for Crown land

Table 2. Highest risks across Crown lands in NSW created by climate change

Priority risk	Damage to land, biodiversity and infrastructure	Statewide risk rating 2030	Statewide risk rating 2070
Physical damage to built assets and infrastructure	• Increasing need for repair, remediation and capital works for Crown land sites, community facilities, Crown roads and reserves, to ensure continued access and public safety. • Greater demand on our resourcing for maintenance and repair of roads and infrastructure. • Greater resourcing needed for fire management to protect our natural assets and adjoining land. • Access routes becoming impassable. **What does this mean for the community?** The community may lose access to Crown land if it is unsafe, or existing uses of Crown land may need to change.	**High**	**Extreme**
Damage to and loss of biodiversity and natural assets	Disruption and vulnerability of valuable biodiversity, including threatened species, because of: • changing climate conditions • changed habitats • increasing extreme weather events • spread of invasive species and disease • other changes attributed to climate change. **What does this mean for the community?** Loss and further endangerment of our diverse native plants and animals, and degraded natural places because of changing climate conditions.	**High**	**Extreme**
Land no longer fit for current purpose	Land becoming unfit for its current use because of the impacts of climate change. • This is of particular concern along the coast, because of tidal inundation, catchment flooding or beach erosion. It could affect coastal foreshores, infrastructure and reserves. • In some cases, we may need to move infrastructure to maintain vital services. **What does this mean for the community?** Particularly on the coast, some community facilities such as caravan parks and surf lifesaving clubs may no longer be useable or may need to be moved.	**High**	**High**

Priority risk	Social and wellbeing impacts	Statewide risk rating 2030	Statewide risk rating 2070
Loss of access or harm to Country, community use and public value	• Loss of access to places or facilities because of damage. Safety risks may limit the use of Crown land, affecting public value. It could mean loss of access permanently, or a temporary inability to hold events because of extreme weather. • Damage to irreplaceable Aboriginal and non-Aboriginal heritage assets (places and items). • Aboriginal people may lose access to Country or it may be restricted after natural hazards. This may be temporary or long term. **What does this mean for the community?** Negative health and wellbeing impacts on communities because of reduced social participation, connection and a sense of purpose.	**Medium**	**High**
Return of Aboriginal land disrupted	• Remediation or other works necessary before returning land to Aboriginal people may be delayed or hindered by storms, flood, fire or coastal hazards. • Land transferred to Aboriginal people may become degraded because of natural hazard events. **What does this mean for the community?** There may be delays in returning land to Traditional Owners and impacts on the cultural, spiritual, physical and economic wellbeing of Aboriginal communities.	**Medium**	**High**
Impacts on the wellbeing of staff and Crown land managers	• Natural disaster events and the cumulative challenges of climate change may affect the health and safety of staff and Crown land managers. • Exposure to hot temperatures, bushfires, and storms may affect staff and Crown land managers. **What does this mean for the community?** • Greater stresses and risk of burnout for staff and Crown land managers who are preparing for, experiencing, and responding to extreme weather events. • Disruptions to services for the community.	**Medium**	**High**

Priority risk	Impacts to service delivery and funding	Statewide risk rating 2030	Statewide risk rating 2070
Loss of volunteer Crown land managers	• Volunteers on Crown land manager boards may resign because of the increasing repair, maintenance and administration necessary for Crown reserves after natural disasters. **What does this mean for the community?** Stresses and workloads from extreme weather events may make volunteers resign, affecting community connection and participation for volunteers and the wider community.	**Medium**	**Medium**
Crown land managers unable to manage climate impacts	It may be increasingly challenging for Crown land managers to care for Crown reserves and built and natural assets: • in preparation for, during and after severe weather events • to make ageing infrastructure resilient enough to withstand a changing climate. **What does this mean for the community?** The challenge of maintaining and adapting reserves may become more difficult for volunteers to manage. Some reserves may become unfit for purpose.	**Medium**	**High**
Inability to fund maintenance, repairs and upgrades on Crown reserves	There will be more pressures on available reserve funding for asset repair, maintenance and management after natural hazards because of: • added costs of improving climate resilience • rising costs of greater pest and weed management • rising costs of capital works projects • more assets at the end of their useful life returning to the Crown lands portfolio. **What does this mean for the community?** Reserves may no longer meet community needs if we defer repairs and maintenance for lack of funding. We may need to close them for public access.	**Medium**	**High**
Impacts to service delivery and resourcing	Backlogs and delays caused by extreme weather events and natural hazards will place pressure on the department's staffing resources. This may also affect delivery of maintenance and upgrade works. **What does this mean for the community?** There will be delays in granting tenures and maintaining reserves and assets because disaster response activities will take priority when there is extreme weather.	**Medium**	**High**

Priority risk	Impacts to service delivery and funding	Statewide risk rating 2030	Statewide risk rating 2070
Unusable, often contaminated, land and assets being added to the Crown estate	• There are cases where land – often contaminated land – that cannot be used for other purposes becomes Crown land when responsibility for its management falls to the government. • We expect this to increase with climate change. **What does this mean for the community?** Unusable land brought into the Crown estate cannot be remediated or diverts funding from existing assets, affecting public value.	**Medium**	**High**
Funding uncertainty	Funding uncertainty and constraints affect our ability to act on climate risk. **What does this mean for the community?** We may need to defer or scale down some actions to address the impacts of climate change because of reduced funding, limiting their effectiveness.	**High**	**High**
Increased need for places of refuge on Crown land to be maintained and fit for purpose	Because of natural disasters, strategic Crown land sites and assets such as showgrounds, community halls and travelling stock routes will need to be safe, accessible and ready at short notice as places of refuge for people and stock. **What does this mean for the community?** There must be ongoing maintenance of these assets so they can meet community needs during a natural disaster.	**Medium**	**High**

How we address the impacts of climate change on coastal Crown land

Much of the coastal land along NSW, including most beaches, headlands and estuaries, is Crown land. As sea levels are rising, beach erosion events are expected to become more frequent and severe. Communities are concerned about the impacts of rising sea levels, potential loss of public beachfront land, as well as erosion risks to infrastructure and private property.

One example is at Clarkes Beach, near Byron Bay. Severe erosion of the beach became a risk to public safety and affected a café on the neighbouring Crown land. The Crown Lands team carried out coastal protection works, installing a temporary sandbag seawall (as shown below). We are investigating longer term solutions for the café, beach and neighbouring Crown reserve.

The NSW Government is managing these complex issues through the Coastal Management Framework. Crown Lands has developed guidelines in keeping with the framework that include management of coastal hazards and climate change risks. The Coastal Crown Lands Guidelines help councils and other Crown land managers look after coastal Crown land in an integrated and strategic way. The guidelines make it clear how decisions are made.

We will also ensure we identity coastal risks such as beach erosion and coastal flooding before we grant or renew leases and licences on coastal land.

Figure 5. Beach erosion at Clarkes Beach, 2020 | Figure 6. Completed temporary coastal protection work

Adaptation Action Plan

This first action plan sets out foundational steps to build our capability, capacity and systems so we can better respond to climate change. The actions include both new and existing initiatives to address the top climate risks for Crown Lands. Over time, successive adaptation plans will continue to strengthen and embed our response to the impacts of climate change.

Icon legend:

Icon	Risk category
	Damage to land, biodiversity and infrastructure
	Social wellbeing impacts
	Impacts to service delivery and funding

Objective 1: Build climate resilience across the Crown land estate

Action	Outcome	Address risk category			Timeframe
1. Manage coastal risk Support development and implementation of coastal management programs	• Councils manage NSW coastal land in a coordinated way as we work with them to finalise and carry out their coastal management programs on Crown land. This includes their response to the risks of coastal climate change.	Yes		Yes	December 2026
2. Carry out bushfire management activities on Crown land Deliver the following planned programs for 2024–25 and 2025–26: a. Maintain asset protection zones annually b. Complete planned hazard-reduction burning in line with bushfire risk management plans c. Inspect and maintain fire trails	• Bushfire management activities help reduce the risk of high-intensity fires and are important to fire preparedness. Inspecting fire trails annually and maintaining them creates access for strategic firefighting through the network of fire trails. • This work also allows us to assess and monitor vegetative fuel that will feed fires, which helps fire agencies understand the fire risk.	Yes			June 2026

Objective 2: Develop our capacity, capability and systems to better respond to climate change impacts

Action	Outcome	Address risk category			Timeframe
3. Integrate climate data a. Complete Coastal Mapping project to assess the exposure of Crown land to coastal hazards b. Analyse flood map data and impact assessments to identify high-risk assets and prepare for future events c. Integrate climate change data into Crown Lands' integrated asset management information system d. Review built and natural assets to understand which are the most vulnerable or at risk	• Crown Lands has a clearer idea of what is at risk, to help prioritise asset maintenance and repair and better plan for future management of coastal Crown land. • Crown Lands understands the impacts of recent major floods, which informs future planning and decisions about land and asset management. • Consideration of future climate changes becomes part of our asset planning. This provides a basis for strategic investment decisions and ensures that assets give the most public value. This will also allow us to protect cultural heritage and access to Country.	Yes	Yes	Yes	December 2024 December 2026 December 2026 December 2026
4. Build Crown land manager capability Give Crown land manager volunteers information and support to prepare for and respond to natural disasters	• Crown land manager volunteers better understand key climate change risks in their region and what they can do to adapt.	Yes	Yes	Yes	December 2026
5. Partner with Aboriginal stakeholders Work in partnership with Aboriginal stakeholders to carry out planned cultural burns in Albury, Murray River, South Coast, Scotts Head and Sydney	• Stronger partnerships will better support Aboriginal land management and knowledge practices through future cultural burns and culturally informed burns in 2024–2025.		Yes		December 2025
6. Build staff capability a. Develop information and guidance for staff to improve their understanding and knowledge of climate change and its impact on the Crown estate b. Carry out Crown Lands Emergency Management Strategy	• Staff are better equipped to consider and respond to climate change impacts when managing Crown land. • Ensures we are prepared for natural disasters and support NSW emergency response and recovery operations.	Yes	Yes	Yes	June 2026 December 2026

Objective 3: Include climate change in evidence-based decisions about the Crown estate

Action	Outcome	Address risk category			Timeframe
					
7. Make climate risks part of Crown Lands' policy and decision-making frameworks, starting with: a. decisions about land use b. coastal land c. asset management	• Evidence-based policy and asset management will ensure our assets are resilient to the impacts of climate. The use of Crown lands affected by natural hazards will be durable and adaptable. • Consideration of climate change will inform building works that will adopt the principle of 'build back better' through design and materials that will have greater resilience to future climate impacts.			Yes	December 2026

Monitoring and review

We will monitor and evaluate this adaptation plan. This will ensure that our actions continue to respond to the challenges of climate change, and the complex and long-term nature of managing climate risks.

We will monitor and evaluate the plan each year, using data collected from adaptation actions. This will assess the overall effectiveness of the plan and its adaptation actions. We will review and adjust actions as conditions and our approaches change.

As our capability and understanding of climate change impacts improves over time, we will develop qualitative and quantitative measures to chart the changes that are happening and report our progress.

We will review and update the plan in 2 years, ensuring it is consistent with other NSW and federal plans and strategies. These include the NSW Climate Change Adaptation Strategy and National Climate Resilience and Adaptation Strategy.

Endnotes

1 NSW Government (2022) NSW Climate Change Adaptation Strategy, available at https://www.climatechange.environment.nsw.gov.au/sites/default/files/2022-09/NSW%20climate%20change%20adaptation%20strategy_.pdf

2 AdaptNSW (2024) Climate change in my region: Regional Climate Snapshot reports, available at https://www.climatechange.environment.nsw.gov.au/my-region

3 NSW Government (2024) AdaptNSW, available at https://www.climatechange.environment.nsw.gov.au/home

4 AdaptNSW (2024) Climate projections used on AdaptNSW, available at https://www.climatechange.environment.nsw.gov.au/about-adaptnsw/climate-projections-used-adaptnsw

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7 NSW Government (2019) North Coast Enabling Regional Adaptation, available at https://www.climatechange.environment.nsw.gov.au/my-region/enabling-regional-adaptation

8 NSW Government (2020) Hunter and Central Coast Enabling Regional Adaptation, available at https://www.climatechange.environment.nsw.gov.au/sites/default/files/2021-06/Hunter%20and%20Central%20Coast%20Enabling%20Regional%20Adaptation.pdf

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10 NSW Government (2017) New England and North West Enabling Regional Adaptation, available at https://www.climatechange.environment.nsw.gov.au/sites/default/files/2021-06/New%20England%20North%20West%20Enabling%20Regional%20Adaptation%20Report.pdf

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13 NSW Government (2023) *Climate Change (Net Zero Future) Act 2023* No 48, available at https://legislation.nsw.gov.au/view/html/2023-12-11/act-2023-048

14 Australian Government (2021) National Climate Resilience and Adaptation Strategy 2021–2025, available at https://www.dcceew.gov.au/sites/default/files/documents/national-climate-resilience-and-adaptation-strategy.pdf