

**Report 12 of 2021**

**Annual report**

for the year ended 30 June 2021

Part D: Managing climate change  
in South Australia





# **Report of the Auditor-General**

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### Annual report

for the year ended 30 June 2021

Part D: Managing climate change  
in South Australia

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By authority: S. Smith, Government Printer, South Australia

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*The Auditor-General's Department acknowledges and respects  
Aboriginal people as the State's first people and nations, and  
recognises Aboriginal people as traditional owners and occupants of  
South Australian land and waters.*



**Auditor-General's  
Department**

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# 1 Executive summary

This Report provides an overview of aspects of climate change management in South Australia. It is my view of how some global governance, risk management and accountability developments could support and help improve the climate change management practices that are already used in South Australia. Applying these developments will help assure South Australians that the SA Government has embedded reliable disciplines, practices and tools into its processes to achieve its climate change goals and responsibilities. Making these changes would also ensure that South Australians have access to information on climate change management at a level and quality that is in line with global practice.

The commentary in this Report is not based on the results of an audit. Rather, it arises from my research to understand the SA Government's exposure, activities and progress on climate change risks and their management. From this research and my past audit experience, I have made observations and recommendations in some of these areas.

I have prepared this Report because of the fundamental significance of climate change in South Australia. I deeply appreciate the complexity of climate change risks, and this Report does not attempt to summarise every achievement, activity and aspect of climate change in South Australia. It is reasonable to expect that significant investment, resources and lead time would be required to provide the education and training to implement all the planned actions and governance matters discussed in this Report. I believe these matters should be brought to the attention of Parliament and the SA Government.

Global responses to climate change are a combination of pursuing opportunity and managing risks. I focus on risk management because of the pervasive and extreme consequences of climate change. This Report:

- explains the SA Government's roles and responsibilities for addressing climate change risks
- provides some of South Australia's climate change plans, actions and selected recent achievements. In the time I had available for my research, I could not obtain a full understanding of all actions in progress and past achievements. Any omissions are due to my limited available time. Other reporting from the SA Government will be available soon to provide a more complete overview of all actions in progress
- provides my observations and recommendations about the way the SA Government is responding to climate change risks. My aim is to support achieving strategies and plans through improving practices in areas such as governance, infrastructure, procurement, risk management practice and accountability reporting.

## 1.1 Climate change in South Australia

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South Australia has a history of successes in climate change management. This comes from many years of work and commitment by South Australians. It is evident there is a comprehensive range of well-based plans in progress to respond to climate change risks. In my view, this is good news. South Australians can take confidence from a record of

achievements and the State's willingness and capacity to tackle climate change through plans and strategies. However, many of the current plans are in their early stages and there is much more to do to mitigate and adapt to the complex range of climate change issues.

Climate change requires accelerating action now. In my opinion, the supporting global governance, risk management and accountability developments discussed in this Report could help improve current climate change management practices. These supporting practices should commence in line with that urgency.

## 1.2 Summary of recommendations

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My recommendations to help the SA Government and agencies include:

- providing a single source of information for South Australians to access and understand climate change information and strengthen confidence in the State's readiness for risks and future developments
- ensuring that an agency's practices and systems help them to effectively achieve their responsibilities for planning and delivering climate-resilient infrastructure, buildings, housing and public spaces
- considering risk management practices for mitigating claims against the government from climate change events
- clearly evidencing, addressing and embedding infrastructure project considerations, such as those identified by Infrastructure SA, into decision-making, infrastructure business cases and solutions and project delivery
- assessing the risk of existing or future public assets becoming stranded due to climate change risks
- establishing clear climate-related responsibilities in procurement practices
- identifying and understanding clear roles, responsibilities and accountabilities where an agency has individual or shared goals and actions for the State's climate change strategies
- reporting for actions to manage separate climate change risks in line with global practices, using the *Task Force on Climate-related Financial Disclosures* framework and scenario risk assessments information provided by the Department for Environment and Water
- integrating climate change risk exposure and implications in financial reporting amounts and disclosures
- integrating climate change risk management into risk and performance committee monitoring
- working with auditors to establish a mutual understanding of climate change risks, accessibility of information and the effects on agency financial reports.



## 2 Why we should act

The World Economic Forum reports extreme weather, climate action failure and human environmental damage as the highest rated risks by likelihood. Climate action failure is rated as the second highest risk by impact after infectious diseases.<sup>1</sup> Globally accepted scientific evidence clearly concludes that human influence has warmed the Earth's atmosphere, oceans and land with widespread, rapid changes in the air, ocean, cryosphere (ie frozen water parts of the Earth's system – snow or ice) and biosphere (ie living ecosystems/organisms).<sup>2</sup> The *State of the Climate 2020* report predicts escalating climate variables in weather and climate extremes for Australia's physical environment into the future if actions are not taken now to change them.<sup>3</sup> These variables include:



Maximum, minimum and average temperatures will continue to rise with more frequent hot days and longer warm periods.



Sea levels are already higher than the global average and are set to continue rising, causing an increase to coastal erosion.



Fire seasons are projected to last longer with more frequent, warmer and drier conditions, especially in southern Australia.



Heavy rainfall and river floods are projected to worsen with fewer days of rain in winter.



Droughts are projected to increase due to higher air temperatures and less rain. Across southern Australia drought has already increased and is projected to worsen.

The SA Government has acknowledged the impact of the changing climate on our physical environment and significantly invested in developing the State's collective actions to adapt and mitigate climate risks. It has committed to reducing greenhouse gas emissions (emissions) by more than 50% (from 2005 emission levels) by 2030 and achieving 'net zero' emissions by 2050.<sup>4</sup> The scale of this challenge will require a transformation to the South Australian economy, public sector and industry.

Urgent action to strategically recognise and adapt to climate change risks, reduce emissions and manage long-term costs is critical for all organisations, both government and private sector. Organisations should act, identify, prepare and coordinate actions for adaptation and mitigation risks management and create climate-resilient opportunities across government and industry. Other risks for government include policy leadership, value for money, accountability, coordination and delivery activities.

### **Adaptation**

Actions that build resilience to the actual or expected climate change risks, including financial and valuation, strategic uncertainty and reputational risks.

### **Mitigation**

Actions that prevent or reduce emissions and the extent of future climate change. Mitigation risks include policy and regulatory, litigation and liability and technological.

The SA Government recognises that acting on climate change also creates opportunities to advance the effectiveness and efficiency of industries, grow our economy and support community resilience and wellbeing in South Australia.<sup>5</sup> See Appendix 1 for the projected climate risks, challenges and opportunities for South Australia noted by the Department for Environment and Water (DEW).

# 3 What is being done about climate change

## 3.1 Governance

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This section discusses some of the elements of governance, legislation and responsibilities related to climate change. Good governance arrangements that comprise control, operational and accountability systems are foundational for success. Good governance typically arises from having clear and consistent performance arrangements that cover roles and responsibilities, purpose, strategy, integrity, stewardship, risk management, transparency and accountability.

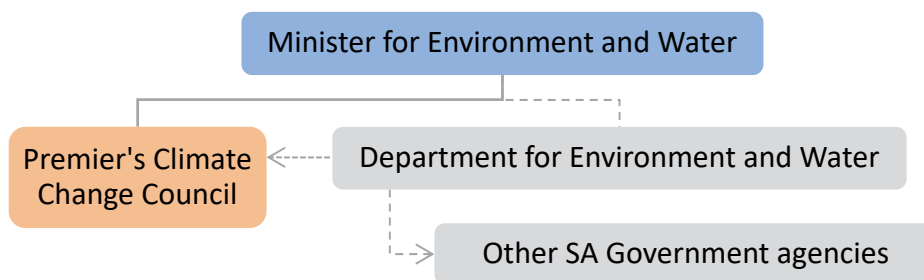
The South Australian public sector operates through multiple departments and statutory authorities. As separate entities, they have governance and accountability responsibilities to Ministers and boards according to their enabling legislation and policy. All public sector agencies report separately to Parliament about their operations through annual and financial reports.

Accordingly, all public sector agencies have a role in responding to climate change risks. Each agency needs to clearly understand their exposure to and responsibilities about responding to climate change. The SA Government acknowledged this in one of its key climate documents – the *South Australian Climate Change Action Plan 2021-2025*.<sup>6</sup> More information is provided about this under sections 3.3 and 4.5.

### 3.1.1 Legislation

In South Australia, the *Climate Change and Greenhouse Emissions Reduction Act 2007* (the Act) was passed by Parliament in July 2007. Through the Act, Parliament acknowledged the need for legislation to provide measures to address climate change to help achieve a sustainable future for the State. Parliament sets specific governance arrangements and responsibilities to achieve this, including emissions and renewable targets, reporting requirements, independent assessments and reviews of the Act (see figure 3.1 for an outline of the governance structure). Appendix 2 sets out the Australian state and territory net zero emissions targets and other governance information for comparison.

Figure 3.1 : Governance structure under the Act



Note: The Act sets out functions for the Minister and the Premier’s Climate Change Council. These functions are performed largely through government agencies, with specific responsibilities for the Minister’s department.

## ***Climate Change and Greenhouse Emissions Reduction Act 2007***

The Act:

- sets targets to reduce South Australia’s emissions and increase the generation and use of renewable energy sources
- sets measures to address climate change and achieve sustainability for South Australia
- sets governance and reporting arrangements for the Minister for Environment and Water and the Premier’s Climate Change Council (the Council)
- facilitates the development of policies, offset programs and actions/initiatives for mitigating and adapting to climate change
- promotes the research, development and use of innovative technology to reduce or limit emissions and support adaptation to climate change
- promotes business and community education about climate change issues and scientific knowledge.<sup>7</sup>

### 3.1.1.1 Targets set under the Act:



**Reduce emissions** by at least 60% to an amount that is equal to or less than 40% of 1990 levels (principal target).

The SA Government has subsequently committed to stronger emissions reduction goals and aims to reduce emissions by more than 50% below 2005 levels by 2030 and achieve ‘net zero’ emissions by 2050.<sup>8</sup>



**Increase** the generation and use of **renewable energy** sources by 20% by 2014.

The SA Government has subsequently committed to stronger renewable energy targets and is seeking to achieve net 100% renewable energy generation by 2030.<sup>9</sup>

### 3.1.2 Minister for Environment and Water

The Minister’s role is to help develop, review, implement and support climate change policies, programs and actions against the State targets and any sector-based or interim targets under the Act. The Minister is required to prepare regular progress reports on climate change actions and reviews under sections 7 and 21 of the Act:



**Section 7** – Two-yearly reporting on the operation of the Act. This includes reporting on assessments of the effectiveness and progress of initiatives and targets, offset programs and national/international commitments. The Minister also reports a summary of emission levels, the use of renewable energy and the development and use of climate adaption technologies in South Australia. Each alternative report has an independent assessment about achieving or revising targets under the Act provided by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) or other independent entity.



**Section 21** – Four-yearly reporting on the review of the Act in consultation with the Council and other entities. This includes reporting on the progress of achieving objects and targets of the Act and other legislative measures and matters reviewed by the Minister.<sup>10</sup>

### 3.1.3 Premier’s Climate Change Council

The Council was established under the Act as an independent advisory body to the Minister, to help monitor and review the development and implementation of climate change strategies and actions for South Australia. The Council recently supported the development of the *Directions for a Climate Smart South Australia* plan, the *South Australian Government Climate Change Action Plan 2021-2025* (Action Plan) and the *Blue Carbon Strategy for South Australia*.

The primary role of the Council is to provide independent advice to the Minister for Environment and Water on reducing emissions and adapting to climate change. It provides advice on:

- achieving energy efficiencies
- increasing the use of renewable energy
- developing methods to remove greenhouse gases from the atmosphere
- creating and achieving targets
- climate change impacts on business and the wider community
- assessing costs for mitigating or adapting to climate change – or failing to act
- innovation and economic opportunities
- the effectiveness of targets under the Act.

The Council is required to provide annual reports under section 13 of the Act, the *Public Sector Act 2009*, the Public Sector Regulations 2010 and Premier and Cabinet Circular PC013 *Annual Reporting*.<sup>11</sup>

The Council takes a leadership role in consulting with businesses, the environment and conservation sector and the wider community about climate change issues.

### 3.1.4 Department for Environment and Water

DEW supports the Council and develops and coordinates climate change mitigation and adaptation strategies. It helps SA Government agencies and other entities like industry to perform actions to adapt and mitigate climate change risks.

### 3.1.5 Other SA Government agencies

As noted, all public sector agencies have a role in responding to climate change. The Action Plan sets out 68 cross-government actions to mitigate and adapt to climate change risks for South Australia. It clearly identifies the individual agencies that are responsible for delivering these actions.<sup>12</sup>

More information about the Action Plan is provided in section 3.3.

The complexity of climate change issues and coordinating actions between agencies is challenging. It is vital that all public sector agencies are clear about their responsibilities in the Action Plan and their individual and collective roles in working together to progress statewide strategic climate change risk management goals. Agencies need to be clear about how they are accountable for their responsibilities. This and other activities, including how DEW is working with agencies, are discussed further in sections 3.3, 4.5 and 5.1.

## 3.2 Financial investments

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The SA Government has expended significant money on a range of climate change matters and strategic actions over many years. Some significant examples in recent years include:

- in June 2019, the Minister for Environment and Water approved expenditure of \$155.6 million over four years to 2021-22 from the Green Industries Fund. Most of it was for the Home Battery Scheme (\$100 million) and Grid Scale Storage Fund (\$50 million) initiatives through the Department for Energy and Mining
- after the 2019-20 bushfires, the SA Government responded by committing \$305 million to bushfire response and recovery measures in the 2020-21 State Budget.

The SA Government also committed significant funds in the 2020-21 State Budget to develop and implement the Action Plan over the next five years, including:



**\$60 million** over two years for capital upgrades to improve the energy efficiency of government buildings and long-term electricity cost savings.



**\$37 million** over four years for the Port Bonython Jetty Upgrade to support hydrogen and ammonia export.



**\$28 million** over four years to conduct more hazard reduction burns in the Mount Lofty Ranges, on Kangaroo Island and on private conservation lands.



**\$19.8 million** to the new Kangaroo Island desalination plant.



**\$18.3 million** over four years for electric vehicle charging infrastructure.



**\$18 million** additional funding for the Home Battery Scheme.



**\$8.5 million** for new solar photovoltaic and battery storage capacity at the Central Power House in Umuwa.

### 3.3 Strategic actions

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The SA Government released the Action Plan in December 2020. Its goal is to help deliver on the *Directions for a Climate Smart South Australia* policy (the Directions) and drive further progress towards statewide emissions reduction goals. The Action Plan focuses on seven areas of climate change over the next five years:<sup>13</sup>



#### **Clean energy transformation**

Accelerating the renewable energy economy and hydrogen and biofuel industries through innovative low emission technologies.



#### **Climate smart economy**

Attracting and supporting climate-resilient business innovations, risk management and developing climate-resilient resourcing, including the circular economy.



#### **Government leading by example**

Embedding climate change risk and opportunity into SA Government policy and practice to work towards net zero emissions in government.



#### **Low emissions transport**

Aligning transport and urban planning with low emissions transport and electric vehicles, through low and zero emissions vehicles and fuels and increasing public transport and active travel use.



#### **Climate smart built and urban environments**

Providing for the development and design for strategic urban greening and reduce climate change risks to infrastructure.



#### **Resilient communities**

Supporting communities and businesses to build resilience and adaptation activities and provide accessible climate change science and information. Enhance climate change adaptation in emergency management and health services.



#### **Climate smart agriculture, landscapes and habitats**

Supporting the development of an adaptive and innovative agriculture sector and coastal protection through carbon farming, blue carbon and building resilient natural resource supplies like water, land and habitat.

The Action Plan has 68 actions that set out the key objectives and responsibilities for SA Government agencies.<sup>14</sup> The Council has worked with agency representatives to develop an implementation plan which sets out practical steps to achieve the objectives. DEW advised me that agency chief executives endorsed an internal-to-government implementation schedule that provides time frames, deliverables and reporting metrics for each action. Across-agency arrangements for implementing governance, monitoring, evaluation and reporting systems were also developed.

## 3.4 South Australia's recent achievements

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This section provides an understanding of the extent and nature of achievements so far in responding to climate change. As I noted in my executive summary, the State has a long history of responding to climate change. Some of the past strategic directions include:

- *South Australia's climate change vision – Pathways to 2050*
- *Carbon Neutral Adelaide Action Plan*
- *South Australia's Climate Change Strategy 2015 – 2050: Towards a low carbon economy.*

I have already discussed the Directions and Action Plan that are part of the SA Government's more recent achievements. These are essential because they guide planning and future actions for this government. Linking to the past, the Action Plan acknowledges that it builds on South Australia's pathway towards decarbonising our economy.

I discuss elements of a range of achievements in this Report. Across government, there are numerous other supporting strategies, plans and actions that I have not reviewed or discussed due to the limited time I had to consider them for this Report. Some of them predate the Directions and the Action Plan. Initiatives for reducing emissions and adapting and mitigating climate change risks include:

- *South Australia's Waste Strategy 2020-2025*
- *Valuing Our Food Waste 2020-2025*
- *South Australia's Hydrogen Action Plan (September 2019)*
- *South Australia's Electric Vehicle Action Plan (December 2020).*

Again, these are not all the initiatives that exist in South Australia. The list is extensive.

The SA Government partners with the Goyder Institute for Water Research to work on climate change research in water, emissions reduction, adaptation and extreme events and provide scientific information to inform decisions and actions. Other climate change adaption projects include:

- *Stronger Together. South Australia's Disaster Resilience Strategy* – a strategy to reduce disaster risk and build community resilience
- *Healthy in the Heat* – a public health campaign and guide to help the community be informed and prepared for the serious health risks from heatwaves
- *Greener Neighbourhoods Grants* – a program designed for metropolitan councils to improve Adelaide's liveability through increased greenery, reduced urban heat and an improved natural environment.

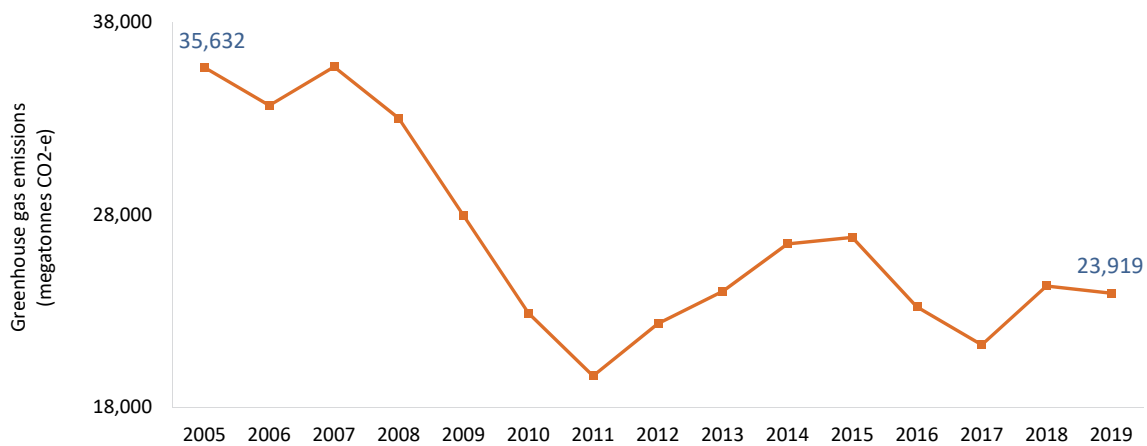
For this Report I selected a small sample of activities to better understand the nature and extent of achievements already made in responding to climate change. These examples cover reducing emissions, adaption, renewable energy and education, research and development.



### 3.4.1 Reducing emissions

In 2019, DEW reported that South Australia’s emissions reduced by 33% between 2005 and 2019, mainly due to transitioning to renewable energy sources and innovations in land use and agriculture.<sup>15</sup> Figure 3.2 shows this reduction.

**Figure 3.2: Greenhouse gas emissions in South Australia between 2005 and 2019**



Note: The Act requires emissions to be measured against 1990 emission levels. Figure 3.2 is based on 2005 levels.  
Source: Australian Greenhouse Emissions Information System, Department of Industry, Science, Energy and Resources, Australian Government, 2021.

The SA Government has focused on adapting and mitigating climate change risks through collective actions across government. The Action Plan clearly outlines the actions and responsibilities for agencies to contribute to achieving to the SA Government’s targets. The Action Plan states:<sup>16</sup>

*The pathway to net zero emissions by 2050 will require much more work from governments, business, communities and individuals, across all economic sectors. Only a modest reduction in emissions is projected if no further action is taken.*

*Regulation or financial incentives are required to achieve optimal levels of carbon capture and storage in South Australia’s landscape, sea and geology. Even in areas in which we expect costs to fall with transition to low emissions technologies, the firms and households that move first absorb the costs of learning that benefit others and therefore warrant public support for innovation.*

### 3.4.2 State bushfire management plan

The frequency of extreme fire weather and the scale and impact of bushfire events across large parts of Australia have increased since the 1950s, particularly in southeast Australia. Climate change is contributing to these increased dangers, including affecting temperature, relative humidity and fuel moisture content.<sup>17</sup>

The 2019-20 extreme fires (Black Summer) and other natural disasters in Australia will be remembered for their devastation and intensity – loss of life, property and wildlife, hazardous air quality from smoke and ash, significant impacts to the health and wellbeing of our people and environmental destruction across Australia. The *Independent Review into South Australia’s 2019-20 Bushfire Season* found:<sup>18</sup>

*... that the losses attributed to the fires included three human lives, 196 homes, 660 vehicles and 68,000 livestock as well as \$200 million of agricultural production. About 280,000 hectares (ha) of land was burnt and several national parks were totally or partially burnt.*

*The tourism and business losses are yet to be assessed and the physical and mental impacts of the bushfire experience are virtually incalculable.*

The 2019-20 bushfires show that historical land management practices are now insufficient to deal effectively with the escalating threats driven by climate change. The increasing intensity, scale and duration of bushfire seasons will continue to overwhelm these fire, natural disaster emergency and landscape management practices.<sup>19</sup>

The *Independent Review into South Australia’s 2019-20 Bushfire Season* made over 70 findings and 15 recommendations to improve South Australia’s approach to dealing with an evolving climate and lengthening bushfire season. In response, the SA Government identified the need for key reforms to the bushfire management planning framework for prevention and mitigation, including developing and implementing a new bushfire management plan.

The *State Bushfire Management Plan 2021-2025* (Bushfire Plan) was prepared by the State Bushfire Coordination Committee for South Australia in line with the *Fire and Emergency Services Act 2005* and released in July 2021. The Committee, the South Australian Country Fire Service and other fire and land management and allied entities contribute to a range of measures to manage and reduce the overall risk of bushfires. The Bushfire Plan outlines these measures, such as managing fuel loads, fire suppression and planning regulations for high-risk areas.

Helping communities and business to build resilience, reduce natural disaster risks and enhance adaption in emergency management and health services is a key objective for area 6 of the Action Plan. The Bushfire Plan is an example of how to prepare for natural disaster emergencies by evaluating the State’s mitigation, adaption and preparedness to respond to these risks. It addresses the priorities for bushfire risk management and the coordinated actions for preventing, preparing, responding and recovering from risks. It aligns strategies and policies to support risk reduction and disaster resilience in communities and sets out the legislative and governance arrangements and reporting processes for South Australia’s bushfire management.<sup>20</sup> The Bushfire Plan supports:

- identifying major bushfire risks in South Australia, focusing on understanding strategic and landscape risks
- establishing principles to support appropriate levels of hazard reduction
- supporting strategic coordination of bushfire management activities between fire and land managers and allied agencies

- establishing requirements and guidance for preparing and implementing Bushfire Management Area Plans to detect landscape risks on a regional scale.

Appendix 3 explains what prevention, preparedness, response and recovery mean for agencies.

### 3.4.3 Renewable energy

In 2019, 56.6% of the State’s energy was generated from renewable energy sources. This was slightly above the national renewable energy target of 50% renewable generation by 2025.<sup>21</sup> The Commonwealth Department of Industry, Science, Energy and Resources reported that this was mainly from wind and solar energy sources.<sup>22</sup>

The CSIRO provides an independent assessment on the progress of achieving targets or where targets should be revised. Its 2018 assessment report states that the share of variable renewable electricity generation cannot continue to increase above 40-50% and still maintain reliable electricity supply without also expanding the capacity of other flexible generation sources such as storage and natural gas plants. South Australia recorded the second-highest renewable energy generation in 2019 for Australia (Tasmania was 94%).<sup>23</sup> The CSIRO’s next independent report is expected to be available by the end of 2021.

**Renewable energy target**  
100% of South Australia’s electricity generation to come from renewable energy sources by 2030.

Area 1 of the Action plan focuses on the transforming the renewable energy sector. The SA Government continued to support and invest in renewable energy generation sources in 2020-21. As discussed in section 3.2, it invested significantly in renewable energy sources. Examples include:

- the NSW-SA interconnector, which mitigates the risk the CSIRO identified and increases the opportunity for exporting renewable energy from South Australia
- the Home Battery Scheme (an additional \$18 million)
- the new solar photovoltaic and battery storage capacity at the Central Power House in Umuwa (\$8.5 million)
- the Port Augusta Renewable Energy Park for solar and wind energy generation
- the Grid Scale Storage Fund to facilitate the development of new storage technologies (\$50 million).

The Australian Energy Market Operator forecasts that there will generally be a steady increase in renewable energy supply for South Australia to 2029 if investment plans continue.<sup>24</sup>

### 3.4.4 Blue Carbon Strategy for South Australia

Marine environments are significantly impacted by changes in ocean temperature and chemistry. This effects how South Australia manages fisheries, tourism, conservation zones and coastal environments.

Globally, blue carbon ecosystems are recognised as a nature-based solution for countries to mitigate the impacts of climate change and reduce emissions. In South Australia, the total area of blue carbon ecosystems is estimated at 1.12 million hectares, with seagrass accounting for 96.7% of this.<sup>25</sup>

### **Blue carbon**

Mitigating climate change by protecting and restoring coastal and marine ecosystems for storing carbon.

Area 3 of the Action Plan focuses on supporting low emissions and climate-resilient agriculture sector, landscapes, habitats and natural resources. It includes actions to expand carbon farming and blue carbon in South Australia. The *Blue Carbon Strategy for South Australia* aims to advance projects to restore and protect coastal and water ecosystems in South Australia. Released in 2019, it focuses on developing and integrating research (led by the Goyder Institute for Water Research) and government projects through industry partnerships and community engagement. It has 12 actions under four objectives and includes a five-year implementation plan.

The SA Government has partnered with a number of non-government organisations to invest nearly \$2 million in blue carbon projects to restore coastal wetlands and improve blue carbon capability and knowledge in 2021.<sup>26</sup> The projects are expected to have co-benefits such as:<sup>27</sup>

- coastal protection from storm surges and increased sea levels, like the sand restoration project from Semaphore to West Beach
- improving water quality and biodiversity through projects like the \$1 million invested to restore seagrass fields along Adelaide’s coastline to protect against erosion, support a healthy marine environment and enhance carbon storage<sup>28</sup>
- restoring and protecting fisheries habitat like the Dry Creek salt field and St Kilda mangroves – this area includes the Adelaide International Bird Sanctuary and Adelaide Dolphin Sanctuary<sup>29</sup>
- nature-based tourism opportunities such as the Salt Water Pavilion in Coffin Bay, SA Premium Oysters in Smoky Bay and Hindmarsh Valley National Park.<sup>30</sup>

### 3.4.5 Environment Protection Authority – working with industry

The Environment Protection Authority (EPA) is South Australia’s independent environment protection regulator and is established by the *Environment Protection Act 1993* (EP Act). The EP Act provides the EPA with a mandate and powers to protect, restore and enhance the quality of the environment.

The EPA mainly fulfils this mandate through the risk-based regulation of pollution and waste management activities for ecologically sustainable development and implementing policies that promote the circulation of materials (a circular economy).

### **Circular economy**

Reducing material resource consumption, waste and pollution through innovative recycling and production activities.

In administering the EP Act, the EPA:

- provides regulatory and co-regulatory services

- shares its science and trend analysis on environmental quality
- provides information and advice to agencies, industry and the community.

The EPA is committed to several actions in the Action Plan. In the next few years, its focus for climate change will be on adaptive responses, strengthening the regulatory framework for circulating materials and sharing information and advice with industry and the community. It has developed a draft role statement titled 'Climate Change: The EPA's role in supporting South Australia's response to climate change 2021-2025'.

The 2021 EPA Board Summit on climate change risks, liabilities and opportunities is an example of how the EPA is developing its engagement with industry, government agencies and the community. The Summit was co-hosted with the Council and in collaboration with the Australian Industry Group. It aimed to raise awareness of climate-related financial, economic, transitional and physical risks that businesses should consider and practical information on data, tools and opportunities for small to medium businesses.<sup>31</sup>

### 3.4.6 Education and local engagement

#### 3.4.6.1 Climate Change Science and Knowledge Plan for South Australia

The SA Government has recognised that climate change adaption and mitigation requires science-based information and knowledge to be shared, to help improve planning and decision-making. Area 6 of the Action Plan focuses on informing and supporting industry and the community in building climate resilience and adaption projects and preparing for natural disaster emergency responses. The *Climate Change Science and Knowledge Plan for South Australia* has a key objective to improve the quality and availability of climate change science and information. It identifies the critical science and information needed to inform climate change risk assessment, mitigation, planning and adaptation responses in South Australia. It provides a plan to prioritise, coordinate, translate and deliver climate science and information across government, industry and the community to inform decisions, create innovative solutions and prepare for natural disaster risks.

Implementing this plan includes:

- identifying the science and information needed by government, business and industry to understand climate change risks and support planning and response activities
- coordinating, curating and communicating climate change science and knowledge projects and engagement activities
- making existing data, science and information more accessible
- recognising and prioritising new science and information generating activity needs across government and industry sectors
- facilitating new science required for decision-making.<sup>32</sup>

This plan and other climate change research and information can be found on DEW's climate change website.<sup>33</sup> The website also links to other climate science and knowledge resource websites and regional data on projected climate variables through to 2100.<sup>34</sup>

The *Guide to climate projections for risk assessment and planning in South Australia* is a key document summarising the likely changes to key climate variables under different greenhouse gas emissions scenarios. It draws on the most up-to-date climate change projections for South Australia<sup>a</sup> and can be used for climate change risk assessment, adaptation planning and community engagement.<sup>35</sup> This is discussed further in section 4.11.

### 3.4.6.2 Local engagement

The *Climate Change Science and Knowledge Plan for South Australia* also focuses on regional research and information for local communities to plan, mitigate and adapt to specific regional climate issues. Supporting local government and community engagement is an objective throughout the Action Plan. Action 6.4 aims to support local adaptation and mitigation projects through the Regional Climate Partnerships network with local government and other regional organisations. These projects include hazard mapping, greening and smart irrigation projects, through to education programs and community capacity building.

Climate change sector agreements are formal cooperative agreements between the SA Government and specific business entities, industries, community groups and regions to help adapt and mitigate climate change. The creation of voluntary climate change sector agreements is encouraged under section 16 of the Act. Current agreements include:

- Adapting Northern Adelaide
- Carbon Neutral Adelaide (Adelaide City Council)
- Resilient East
- Resilient Hills and Coasts
- Resilient South.

#### **Case study: Informing coastal adaptation**

A flood mapping tool was developed to help the Eyre Peninsula and Limestone Coast councils identify and map areas that may be vulnerable to coastal flooding due to storm surges and/or sea level rise. The interactive tool is used to inform the adaptation strategies and decisions such as avoid, retreat, accommodate or do nothing. The project is a partnership between landscape boards and the State and local governments.

An agreement typically encourages actions to reduce greenhouse emissions and adapt to climate change, and may include commitments such as:

- improving energy efficiency
- reducing energy consumption
- promoting the use of renewable energy
- research, development and innovation in technologies or practices
- member awareness raising and behaviour change programs
- identifying opportunities to adapt to climate change.<sup>36</sup>

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<sup>a</sup> The information is based on a range of sources, primarily the CSIRO, Bureau of Meteorology, International Panel on Climate Change and the Goyder Institute for Water Research.

## 4 Some observations and recommendations for next steps

This section makes observations and recommendations about some of the ways Parliament and the SA Government should be responding to climate change risks. I focused on:

- simplifying accessibility to the many actions in progress across the public sector
- planning and delivery of built and urban environments
- infrastructure
- procurement
- coordinating actions.

### 4.1 Recommendations

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I recommend that the SA Government and agencies:

- develop a single source of information for South Australians to access and understand climate change information and strengthen confidence in the State's readiness for risks and future developments
- ensure that agency practices and systems effectively help them to achieve their responsibilities for planning and delivering climate-resilient infrastructure, buildings, housing and public spaces
- consider risk management practices for mitigating claims against the government from climate change events
- clearly evidence, address and embed infrastructure project considerations, such as those identified by Infrastructure SA, into decision-making, infrastructure business cases and solutions and project delivery
- assess the risk of existing or future public assets becoming stranded due to climate change risks
- clearly establish climate-related responsibilities in procurement practices
- clearly identify and understand roles, responsibilities and accountabilities where an agency has individual or shared goals and actions for the State's climate change strategies
- clearly and separately account for agency actions for managing climate change risks in line with global practices, using the *Task Force on Climate-related Financial Disclosures* framework and climate change risk information and scenario recommendations available from DEW for their assessments
- integrate climate change risk management into risk and performance committee monitoring.

## 4.2 A directory of information about the State's readiness to respond to climate change risk events

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### 4.2.1 Public sector readiness reporting on climate change risk exposures

How the SA Government and public sector are managing climate change risks is of growing interest to the public as more information becomes available generally and as natural disaster events associated with climate change, like bushfires,<sup>37</sup> are experienced.

There are multiple ways government activities and accountabilities are reported and communicated to Parliament and the public. Formal accountability reporting is to Parliament. Agencies use many other reporting techniques, including websites, to communicate valuable and informative, climate-related updates to South Australians.

#### A single directory for readiness reporting on climate change risk exposures

Because of the pervasive consequences of climate change risks and the various roles of the SA Government and public sector, it would be beneficial if one source or directory of information about the State's readiness to respond to climate change risk events was available to the public. It should be on a government website for easy access. The COVID-19 pandemic experience is instructive in this case. The SA Health website<sup>38</sup> provides COVID-19 health information and other information links to the public in a central way. It is a key tool for keeping the public informed on events during the pandemic.

#### The purpose and benefit of readiness reporting

The purpose of having one source (or directory) is to enhance and simplify public access to information about the State's progress on climate change management actions. Enhancing the transparency of the many valuable information sources available would give South Australians confidence about the progress being made and whether the State has reasonable actions and plans in place for emerging natural disaster events.

The directory could communicate key elements of the State's readiness for each major projected climate risk and challenge, including:

**Actions being taken** – by agencies to respond to each of the risks and challenges

**Progress of those actions** – for example a traffic light system

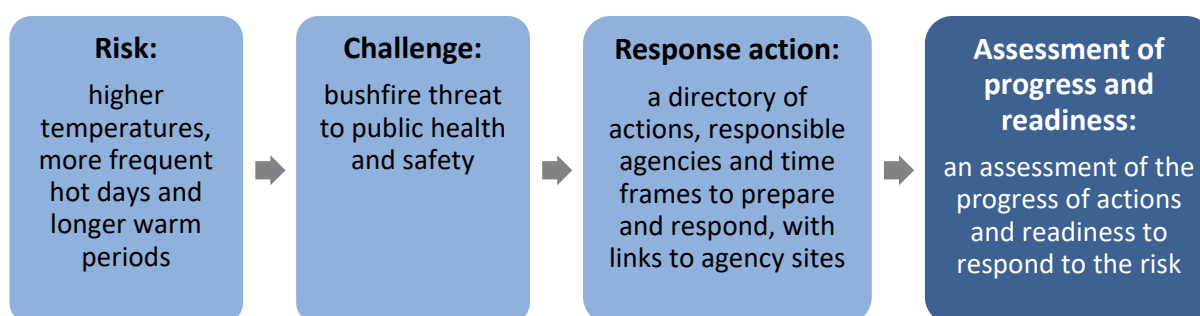
**Expected time frames** – for actions in progress, as best estimated

**Responsible agencies** – with hyperlinks to relevant information prepared by each responsible agency.

Figure 4.1 shows an example of how this directory could be applied for a higher temperature risk scenario.



Figure 4.1: Directory of information for a higher temperature risk scenario



The directory would, importantly, consolidate and clarify government agency information about individual and/or collective roles to progress statewide strategic climate change risk management actions and accountability reporting responsibilities. A suitable framework would need to be adopted to ensure contributing agencies have access to consistent information to support their summary of how prepared they are to mitigate, adapt and respond to climate change risks and natural disaster emergencies.

A directory would improve transparency of the SA Government's assessment of its readiness for the risk, showing the progress of actions and the subsequent state of readiness for the challenges expected, with quick access to relevant agency information, such as health agencies and emergency services.

## 4.3 Planning and delivering of built and urban environments

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Area 5 of the Action Plan is about climate smart built and urban environments. Discussion about this area states:

*Built and urban environments that are climate-resilient and have net zero emissions will support ongoing prosperity and wellbeing...*

*... Much of the infrastructure, buildings and urban design that we establish now will still be in place in 2050 or beyond and will need to be safe, functional and relevant in a climate and economy very different from today.*

Planning and delivering climate-resilient infrastructure, buildings, housing and public spaces is a vital responsibility for State and local governments in the Action Plan. How this is accomplished will be a fundamental to the State's climate change response and how well it helps to achieve a sustainable future for the State.<sup>39</sup>

It is also a key example of where a liability risk may arise due to an event that may have been reasonably foreseeable considering the mounting evidence for climate change. In August 2021, the NSW Land and Environment Court ruled that a bushfire survivor group and the New South Wales Environmental Protection Authority should take steps to safeguard against climate change. The decision was subject to appeal at the time of this Report. The SA Government must consider the risk of claims from climate change events.

## 4.4 Infrastructure

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On 30 June 2020, total State non-financial assets were valued at \$82.2 billion. Of this, \$58 billion was for buildings and structures. The SA Government also incurs significant annual infrastructure spending. In the 2021-22 State Budget, purchases of non-financial assets were estimated to total \$17.9 billion over the four years to 2024-25.

The Action Plan identifies a key objective under action 5.12 to understand and reduce climate change risks to infrastructure by assessing and addressing climate change risks in government infrastructure decisions, risk assessments and audit processes. Responsibility for this is allocated to all agencies, led by Infrastructure SA.

### 4.4.1 Infrastructure planning

In May 2020, Infrastructure SA presented the *20-Year State Infrastructure Strategy* (Infrastructure Strategy).

The Chair's foreword to the Infrastructure Strategy noted:

*Government's policies in respect of climate change are an overlay on the Strategy. Providers are obliged to consider the potential impacts of infrastructure design and construction on urban sprawl, carbon emissions, water management and localised ground temperatures, as well as its resilience in the face of increasing frequency and severity of storms, droughts and bushfires.*

Climate change risks are discussed in various parts of the Infrastructure Strategy. Some of the notable comments that agencies need to address when making infrastructure decisions include:<sup>40</sup>

*Built assets and infrastructure are also exposed to climate-related physical and financial risks. The physical impacts of more extreme weather events along with a warmer and drier climate will affect the operation of assets and infrastructure. The location and design of new buildings and infrastructure will need to consider the future climate, and existing assets may require retrofit or upgrades to increase their resilience.*

*Building resilience to the impacts of a changing climate and reducing emissions are priorities and need to be factored into long-term infrastructure planning. Infrastructure comprises long-lived assets and most assets built over the term of this Strategy will still be operational in 50 years' time.*

*To ensure that assets continue to be utilised and do not become stranded or redundant before their design life, they should be planned with sufficient adaptability.*

The Infrastructure Strategy gives examples of how climate change impacts could be addressed during infrastructure planning:

- conduct analysis during infrastructure scoping and design to understand potential impacts of projected changes to rainfall, run-off and raised sea levels on volumes, quality and timing of stormwater flows and associated infrastructure design requirements
- review and identify available alternate options for where critical access routes intersect hazard-prone land
- design infrastructure to optimise renewable energy use, maximise thermal comfort and minimise energy and water consumption
- consider the application of green infrastructure such as green walls and facades, green roofs, onsite rainwater harvest and use, trees, gardens and plantings to maximise shade
- ensure water infrastructure is planned to help provide water security during increased periods of drought or low rainfall.

All infrastructure projects should now clearly evidence considerations like this in business cases and solutions, and ensure they are addressed in decisions made and projects delivered.

#### 4.4.2 Stranded assets

Asset stranding has become an increasingly prominent subject in the context of climate change. Risks include physical, regulatory or changing social behaviour. In specific situations, assets could become liabilities, such as where there are environmental rehabilitation requirements.

#### **Stranded assets**

Assets that have experienced unanticipated or early write-down or devaluation.

The risk of asset stranding from increased physical risks like fire, flooding, storm damage and coastal erosion or inundation may now be regarded as foreseeable considering the amount of evidence available about climate change.

With this knowledge, the SA Government has a responsibility to assess the risk of existing or future public assets becoming stranded because of climate risks.

### 4.5 Procurement practice

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Procurement opportunities to help achieve climate action goals are noted in several of the focus areas and objectives in the Action Plan. They include:

**Low emissions transport** – *Plan to transition the public transport system to align with net zero emissions targets* (action 4.2). This is supported by contracts for procurement, operation, maintenance and service delivery of the public transport fleet.

**Climate smart built and urban environments** – *Provide for development and design that is low emissions and climate resilient* (action 5). Government procurement, infrastructure requirements, urban renewal and public housing strategies could also help encourage more low emissions and climate-resilient infrastructure, buildings and public spaces.

**Government leading by example** – *Explore and implement additional climate smart procurement reforms* (action 7.2). Procurement requirements and guidance for government agencies to support greater adaptation and emissions reduction outcomes will be developed and implemented.

Government procurement policies and specifications for buildings, infrastructure and other capital works could create demand for and encourage innovation in low emissions and climate-resilient goods and services.<sup>41</sup>

The procurement requirements and guidance (action 7.2) are being developed under new procurement advice arrangements following the South Australian Productivity Commission's Stage 2 inquiry into government procurement. They are discussed in Part A of this Report. The key procurement principles for public procurement are:

- achieving value for money
- supporting and strengthening collaborative relationships
- maximising the opportunity for South Australian business participation
- promoting innovation through outcomes-based procurement
- maintaining probity, accountability and transparency.

Procurement Services SA has published the *Green Procurement Guideline*. It promotes green procurement outcomes and encourages public authorities and suppliers to improve their practices. It aims to balance different procurement priorities, achieve value for money and minimise the impacts on the environment. It sets out a range of practices through the procurement cycle, including planning, selection and disposal.

**Green procurement**  
Purchasing products and services that have minimal adverse environmental impacts.

Importantly, the guideline highlights:

- procurement planning – considering the potential and priority for achieving green procurement outcomes during planning
- specifications – the market approach should specify the green procurement requirements. Simply stating that products are to be 'environmentally preferable' or have a 'lower environmental impact' is insufficient
- supplier selection – evaluating and identifying the offers from potential suppliers that achieve the best sustainability performance.

Establishing effective and efficient procurement practices across the public sector that help achieve climate action goals, low emissions and climate resilience, as well as the key procurement principles, will be challenging. Accordingly, climate-related responsibilities will need to be clearly established in procurement practice.

## 4.6 Coordinating actions

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The Action Plan states that all SA Government agencies have a role in implementing the Action Plan and robust cross-agency arrangements have been established.

51 of the Action Plan's 68 actions involve more than one agency – the lead agency and key partners. Four actions are designated for all agencies:

**Action 5.12** – *Assess and address climate change risk in government infrastructure decisions, risk assessment and audit processes* – all agencies (led by Infrastructure SA).

**Action 7.1** – *Ensure climate risk and opportunity are addressed across government policy and practice* – all agencies and DEW (and some Boards).

**Action 7.4** – *Coordinate an across-agency government greenhouse gas emissions reduction program* – DEW (with all agencies).

**Action 7.5** – *Develop and implement a government waste strategy* – Green Industries SA (with all agencies).

Where agencies are working together for a shared action, clarity about strategic goals, responsibilities and accountabilities is essential for effective collaboration. Agencies are set up as individual entities with specific functions and responsibilities. If shared goals are not clearly set out in accountability arrangements, there is a heightened risk that agencies will naturally focus on their own priority matters for accountability and less on achieving shared goals. Such a result would be to the State's disadvantage.

The Action Plan acknowledges this need in action 7.1. It details a coordinated Climate Risk Ready Government initiative that builds agencies' capability to identify and respond to climate-related risk and opportunities. All agencies will take action to ensure climate risks and opportunities are understood and addressed.

DEW advised me that it is currently working with agencies on this. As noted previously, DEW has also established across-agency governance, monitoring, evaluation and reporting arrangements for the Action Plan to help ensure accountability and implementation. DEW advised me that a steering group was established to oversee implementation. It also advised me that an underpinning implementation schedule, endorsed by all relevant government chief executives, details responsibilities for actions, key time frames, deliverables and reporting metrics.

## 4.7 Integrating climate change into risk management practice

As noted earlier, the public sector comprises departments and statutory authorities. All agencies have adopted risk management practices for their activities and in line with Treasurer's Instruction 2 *Financial Management*. Climate change is a known risk that should be integrated into risk management practices. Good governance and accountability arrangements include transparency about how well risk management practices are operating. Good practice means agencies identify:

- their significant climate risks
- the degree of exposure to risks
- whether sufficient actions exist to manage and reduce the risks to acceptable levels
- where additional actions are needed.

Each agency typically reports on their operations separately to Parliament through annual and financial reports. It follows then that, as climate change is a significant public risk, individual agencies should demonstrate accountability for their climate change risk management practices and actions through their annual reporting.

Conversely, poor risk management practices will leave agencies exposed to risks, including unknown climate risks.

## 4.8 The Task Force on Climate-related Financial Disclosures

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This section discusses how the work of the *Task Force on Climate-related Financial Disclosures*<sup>42</sup> (TCFD) and its framework could be applied and used in public sector reporting about climate change risk. As I acknowledge at the start of this Report, adopting such a framework and practices across government will take time and resources. It will be a complex task that is likely to need central support and guidance coordinated by, for example, the Department of Treasury and Finance and shared across agencies.

Recognising that inadequate information could give rise to concerns about financial stability, the G20 (Group of 20) Finance Ministers and Central Bank Governors requested that the Financial Stability Board<sup>b</sup> ‘convene public and private-sector participants to review how the financial sector could take account of climate-related issues.’<sup>43</sup>

### Disclosures will help financial users understand their climate-related risks

The Financial Stability Board established the industry-led TCFD in December 2015. It designed a set of recommendations for consistent ‘disclosures that will help financial market participants understand their climate-related risks’.<sup>44</sup> The TCFD developed voluntary, consistent climate-related financial disclosures to help investors, lenders and insurance underwriters understand material risks.

#### 4.8.1 Task Force recommendations

The report on the *Recommendations of the Task Force on Climate-related Financial Disclosures* was published in June 2017. It recommended that the key features of climate change-related disclosures should be:

- adoptable by all organisations
- included in financial filings<sup>c</sup>
- designed to solicit decision-useful, forward-looking information on financial impacts
- strongly focused on risks and opportunities related to transition to lower-carbon economy.

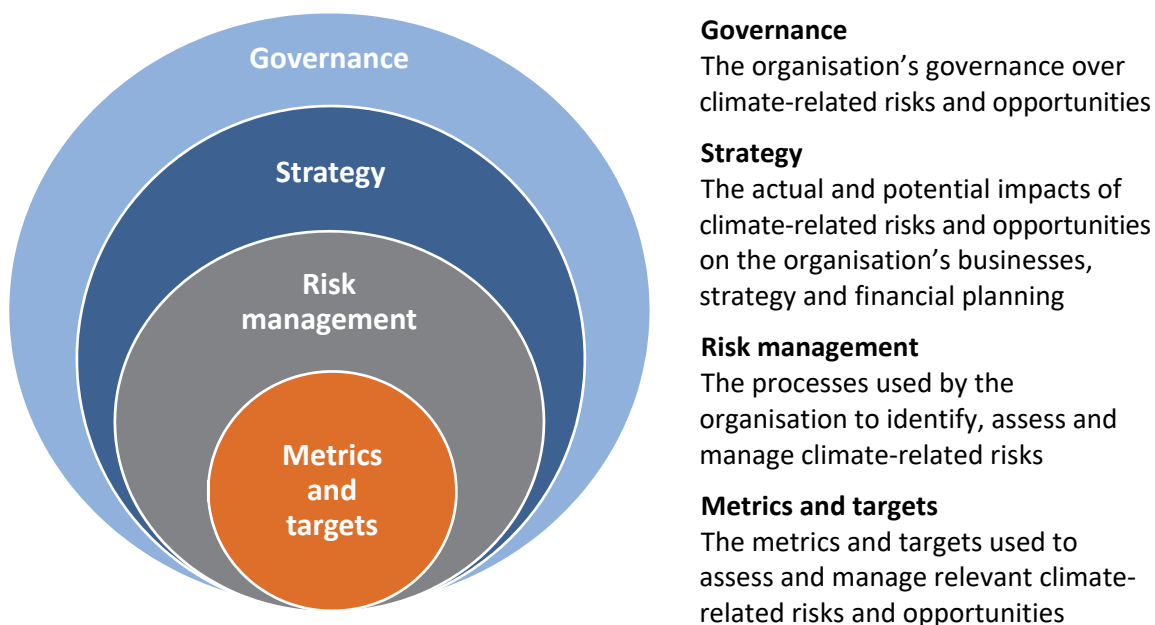
The recommendations cover core elements of how organisations operate: governance, strategy, risk management and metrics and targets as shown in figure 4.2.

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<sup>b</sup> The Financial Stability Board is an international body that monitors and makes recommendations about the global financial system.

<sup>c</sup> Financial filings refer to the annual reporting packages in which organisations are required to deliver audited financial results under the corporate, compliance or securities laws of the jurisdictions in which they operate.

**Figure 4.2: Core elements of recommended climate-related financial disclosures**



Source: *Recommendations of the Task Force on Climate-related Financial Disclosures*, page v.

The four overarching recommendations are supported by suggested disclosures to help users understand how reporting organisations assess climate-related risks and opportunities. The TCFD framework also provides guidance to help organisations develop climate-related financial disclosures.

#### 4.8.2 Specific climate-related financial disclosures

To underpin its recommendations and help guide current and future developments in climate-related financial reporting, the TCFD developed seven principles for effective disclosure. Reporting should: <sup>45</sup>

- represent relevant information
- be specific and complete
- be clear, balanced and understandable
- be consistent over time
- be comparable among companies within a sector, industry or portfolio
- be reliable, verifiable and objective
- be provided on a timely basis.

See Appendix 4 for more detail on the recommended disclosures.

#### 4.8.3 Benefits of implementing the recommendations

The TCFD framework is designed with investors in mind and explains the benefits of implementing the recommendations in that context. There are direct parallels to citizen benefits. Some potential benefits are:

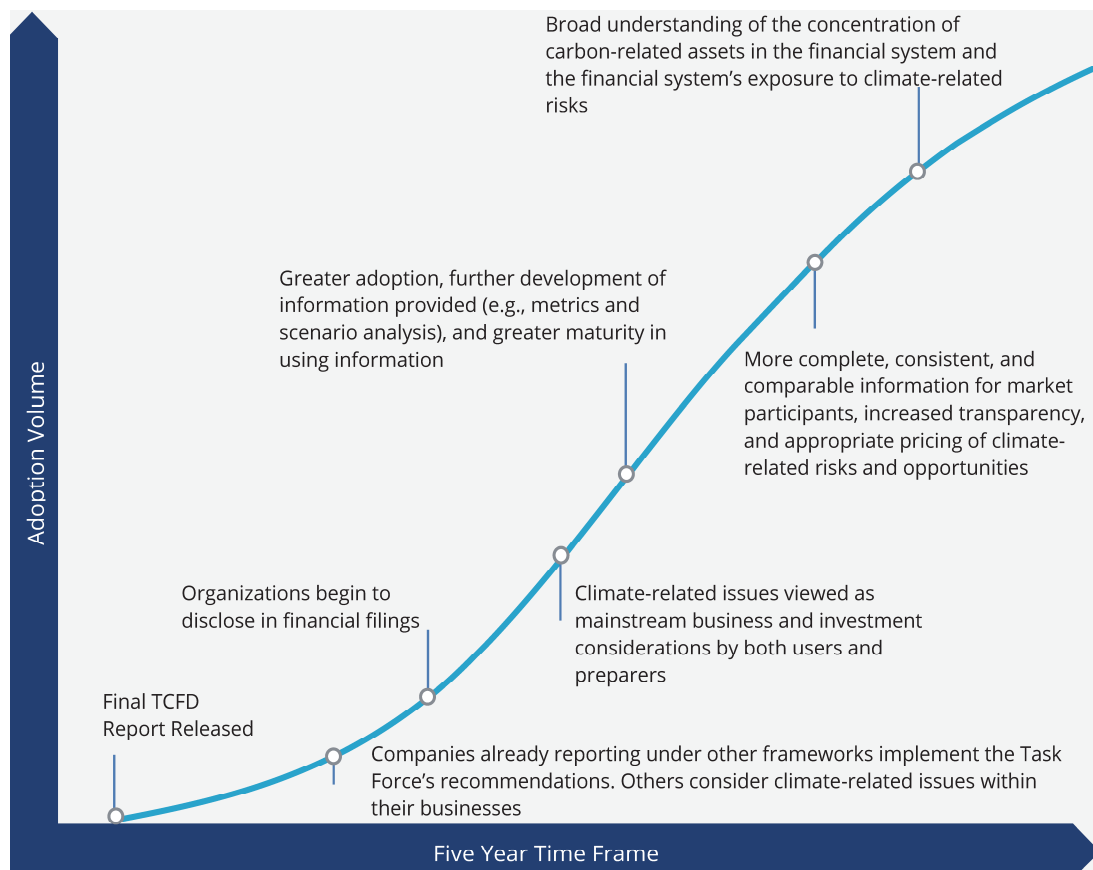
- increasing public confidence that the State’s climate-related risks are appropriately assessed and managed

- more effectively meeting existing disclosure requirements to report material information in annual reports, including financial statements
- increased awareness and understanding of climate-related risks and opportunities, resulting in better risk management and more informed strategic planning
- proactively addressing the public demand for climate-related information, which could reduce the number of climate-related information requests received.

The TCFD expected that reporting about climate-related risks and opportunities would evolve over time, as organisations and others contribute to the quality and consistency of the information disclosed.

The TCFD, which reported in June 2017, proposed a five-year horizon as shown in figure 4.3.

**Figure 4.3: Implementation path for the TCFD (illustrative)**



Source: *Recommendations of the Task Force on Climate-related Financial Disclosures*, page 42.

## 4.9 What would an agency report

The TCFD framework is essentially about improving and increasing reporting for clear, comprehensive, high-quality information on the impacts of climate change.



There are now many accessible examples of how agencies could use the TCFD framework to transparently report to the South Australian public. What each agency should report will depend on the agency's responsibilities and activities.

## 4.10 Task Force recommendations have gained wide acceptance

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Developments in the Australian private sector, regulatory regimes and other jurisdictions show that the TCFD recommendations have gained wide acceptance including:

The **Australian Securities and Investments Commission** – Has referenced the TCFD disclosures since 2018 and recommends listed companies with material exposure to climate risk consider reporting under the TCFD framework.

The **Australian Prudential Regulation Authority (APRA)** – Supervises institutions across banking, insurance and superannuation. In April 2021, APRA released for consultation its draft guidance to banks, insurers and superannuation trustees on managing the financial risks of climate change. It is based on the TCFD as well as APRA's own analysis.<sup>46</sup>

The **Governance Institute of Australia/ASX** – In February 2020 issued *Climate change risk disclosure: A practical guide to reporting against ASX Corporate Governance Council's Corporate Governance Principles and Recommendations*.<sup>47</sup> The guidance was developed to provide practical assistance for ASX-listed entities and others to report against recommendation 7.4 (material exposure to environmental or social risks) of the ASX Corporate Governance Council's Principles and Recommendations (Principles and Recommendations). It encourages considering climate change risk and the TCFD disclosures.

The **New South Wales Treasury** – In March 2021 issued *Guidance on the Effect of Climate Change on Financial Statements*.<sup>48</sup> Appendix A of the guidance sets out examples, extracted from the TCFD report, of climate-related risks and opportunities and the potential financial impacts.

## 4.11 Information to assist agency risk assessments and decisions

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Information about climate change risks for South Australia has been built up over many years, with numerous information resources available from agencies such as:

- DEW
- Goyder Institute for Water Research
- Coastal Protection Authority
- EPA.

DEW issued the *Guide to Climate Projections for Risk Assessment and Planning in South Australia* in November 2020.<sup>49</sup> It summarises the current likely changes to key climate variables under different greenhouse gas emissions scenarios. It draws on the most up-to-date climate change projections for South Australia. DEW states that it could be used for climate change risk assessment, adaptation planning and community engagement.

The **Executive summary** describes statewide climate trends projected to 2050 for South Australia.

**Section 2 – About climate projections** describes how climate models generate projections for the future climate, the influence of greenhouse gas emissions scenarios and the main sources of information on climate change projections in South Australia. It includes recommended scenarios for use in risk assessment and planning in South Australia.

**Section 3 – Description of climate projections to 2050** provides a description of the projected changes in climate for the State in the short to medium-term (2030 and 2050) under a high emissions scenario, and provides examples of potential flow-on economic, social and environmental impacts. It includes examples of projected changes in climate at a regional scale.

**Section 4 – Climate projections for three South Australian locations** provides data on the magnitude of the projected changes in a range of climate variables in the short to medium-term (2030 and 2050) for three locations – Adelaide, Woomera and Mount Gambier – intended to be representative of the north, south and most populated part of South Australia.

**Appendix A** contains a complete set of projections for each South Australian natural resources management region, for each of the time frames (2030, 2050 and 2090) and for two different emissions scenarios – medium and very high.

#### 4.11.1 DEW's recommended scenarios for risk assessments

Most importantly, the *Guide to climate projections for risk assessment and planning in South Australia* provides recommended scenarios for risk assessment and guidance about what scenarios to apply for decisions and assessments.

The rate and extent of changes in future climate will depend on the change in concentrations of atmospheric greenhouse gases, such as carbon dioxide, methane and nitrous oxide, as a result of their release or emission to the atmosphere.

Climate change projections are based on a range of greenhouse gas emissions scenarios, termed 'representative concentration pathways' (RCPs), developed by the Intergovernmental Panel on Climate Change to represent plausible future trends of greenhouse gas emission rates and the consequent concentrations of emissions in the atmosphere. The four commonly referenced RCPs range from very low (RCP 2.6) through to very high (RCP 8.5) future concentrations and are based on possible global responses to manage emissions.

Figure 4.4 shows the modelled future global average temperature changes compared to a 1986 to 2005 baseline period under the four RCP scenarios. It shows that each scenario leads to a significantly different future climate by 2090.

**Figure 4.4: RCPs and projected warming relative to 1986 to 2005 baseline period**

RCP	Global mean temperature increase (°C)	
	2050 (2046–2065)	2090 (2081–2100)
RCP 2.6	1.0°C (± 0.3)	1.0°C (± 0.4)
RCP 4.5	1.4°C (± 0.3)	1.8°C (± 0.5)
RCP 6.0	1.3°C (± 0.3)	2.2°C (± 0.5)
RCP 8.5	2.0°C (± 0.4)	3.7°C (± 0.7)

Source: *Guide to Climate Projections for Risk Assessment and Planning in South Australia*, Department for Environment and Water, South Australia.

For decisions and assessments with a lifetime of up to 2050, the use of a single future emissions scenario may be sufficient and would simplify the assessment process. If this approach is adopted, DEW recommends that climate change risk assessment and planning be based on a future RCP 8.5 emission scenario.

Beyond 2050, uncertainties in emissions pathways and resulting temperature changes increase considerably. For risk assessment and planning decisions that extend beyond 2050, impacts and risks of different emissions scenarios should be considered. As a minimum, both the medium (RCP 4.5) and high (RCP 8.5) emissions scenarios should be considered as recommended by DEW.

## 4.12 A role for risk and performance committees

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Risk and performance committees are a well-established part of public sector governance arrangements. They typically monitor agency risk management practices. Climate change should be integrated into this monitoring as a pervasive risk.

Committees should be satisfied that agencies have properly and fully considered climate change risk. Where it has significance to an agency's operations, it should become part of the risk reporting regime. Accepting the inherent complexity of climate change, it is reasonable to expect that developing mature practice may take some time. Accordingly, an appropriate plan setting out goals, responsibilities, timelines and milestones should be prepared to inform the committee about progress.

An example of recent reference material available for committees is the UK National Audit Office's *Climate change risk: A good practice guide for Audit and Risk Assurance Committees*, published in August 2021.<sup>50</sup> It states:

*This guide will help Audit and Risk Assurance Committees recognise how climate change risks could manifest themselves and support them in challenging senior management on their approach to managing climate change risks.*

## 5 Integrating climate change in financial reporting

In the private sector, developments in climate risk identification and management are expected to inform financial reporting. This is to meet responsibilities to properly inform markets and investors for their investment decisions. In Australia, climate-related disclosures are supported by the ASX, ASIC and APRA. Almost 60% of ASX 100 businesses disclose climate risks following the TCFD framework, according to a KPMG international and Australian analysis.<sup>51</sup> All major accounting firms regularly report on the global progress of climate-related governance and reporting.

The public sector has significant financial reporting responsibilities. A benefit of performing the work recommended by the TCFD will be that the SA Government and public sector agencies will identify and develop an understanding of the implications of climate risks that will, in turn, inform the work needed for financial reporting.

### 5.1 Recommendations

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Government should ensure that public financial reports reflect what is known about its exposure to, and the impact of, climate change risks is integrated into the amounts included and disclosures made in public financial reports.

Individual agencies develop their understanding of climate risks through thorough assessments based on the TCFD (or similar), and to use it to inform and support the assertions and representations in their financial reports, such as:

- when asset values are adversely affected (asset impairment/obsolescence)
- changes in the useful life of assets
- changes in the fair value of assets due to climate-related and emerging risks
- changes in expenditure or revenues
- potential provisions and contingent liabilities.

Climate change disclosures in financial statements should focus on specific issues and assumptions about the recognised amounts for climate change issues. Disclosures must also be verifiable by external audit. As such, they should not be boilerplate statements or of a general nature.

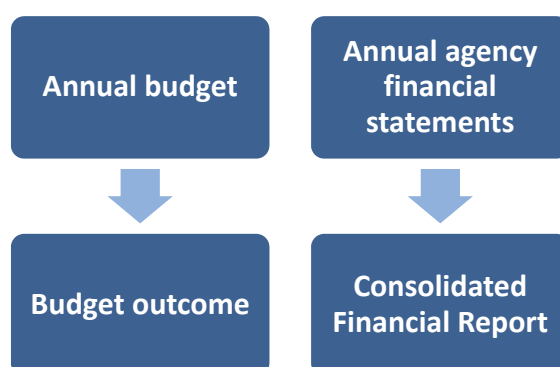
Agencies need to ensure that the information presented in their financial statements is materially consistent with what they present outside of their financial report, such as in their annual report.

### 5.2 The public sector financial reporting framework

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The SA Government discharges its financial accountability obligations through the two key mechanisms shown in figure 5.1.

Figure 5.1: Mechanisms for discharging financial accountability in the SA Government



## The annual budget and budget outcome

Budgets are prepared to support annual appropriations debated and approved by Parliament. A longstanding practice in South Australia is that the Budget Statement paper<sup>d</sup> includes a risk statement chapter. It outlines the major financial risks that could affect the fiscal outlook in that year's budget and the measures adopted to manage them. The risks are typically summarised in three main sections – risks to revenue, risks to expenditure and contingent liabilities. The chapter is ideal for including disclosures about climate risks for public finances.

Each year the Final Budget Outcome reports the financial results for the SA Government's preceding budget against its key fiscal targets. This report should be used to disclose any climate risks that influenced budget performance in the past year.

## The annual financial statements

All public sector reporting agencies are required to prepare annual financial statements. This requirement comes from either the *Public Finance and Audit Act 1987* or an agency's enabling legislation. The Auditor-General's Annual Report and Update to the Annual Report on the annual audits of South Australian public sector agencies.

A Consolidated Financial Report for the SA Government is also prepared each financial year. It fulfils the SA Government's consolidated financial reporting requirements under generally accepted accounting principles.

Financial reports must comply with regulatory requirements, including relevant Australian accounting standards.

When preparing financial reports, agencies are required by the *Public Finance and Audit Act 1987* to certify that they:

- are in line with the agency's accounts and records
- comply with relevant Treasurer's Instructions
- comply with relevant accounting standards

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<sup>d</sup> For example, the 2021-22 Budget Statement Budget Paper 3 Chapter 6: Risk statement.

- present a true and fair view of the agency's financial position at the end of the financial year and the result of its operations and cash flows for the financial year.

Fair presentation requires that the effects of transactions, events and conditions are faithfully represented according to the definitions and recognition criteria for assets, liabilities, income and expenses set out in the Australian Accounting Standards Board (AASB) *Conceptual Framework for Financial Reporting*. AASB 101 *Presentation of Financial Statements* states that financial statements achieve fair presentation when Australian accounting standards are applied, with additional disclosure when necessary.

### 5.3 SA Government's unique role may lead to a high level of contingent exposure to liability and significant impact on assets from climate risks

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The public sector has major economic and social responsibilities for providing public services including health, education, social protection, housing, transport, environmental protection and water supply. The SA Government has significant financial responsibilities associated with these services and a related asset base. Projected operating expenditure exceeds \$24 billion. Total State non-financial assets are valued at over \$80 billion. The SA Government spends significantly on infrastructure each year. The 2020-21 State Budget projects purchases of non-financial assets will total \$17.9 billion over the four years to 2024-25.<sup>52</sup>

The SA Government is also exposed to the risk of having to fund citizens and the private sector in certain circumstances, and certainly in catastrophic circumstances. This has been seen across Australia throughout the COVID-19 pandemic and for bushfires and other disasters. The 2019-20 bushfires led to the SA Government providing \$305 million towards bushfire response and recovery measures in the 2020-21 State Budget.

In the case of COVID-19, the financial support requirements have been extraordinary. In South Australia, initial COVID-19 responses included State-funded packages announced in 2019-20 of \$1 billion. COVID-19 has continued to create significant financial demand for government assistance.

This has led to governments globally incurring significant financial debt to get communities through the worst of the pandemic.

While COVID-19 caused extraordinary interruption, fire, flood and other natural disasters are known to occur periodically. Generally, natural disasters create a dependency on governments to support affected communities. Climate change is expected to result in more frequent and intense events. As these risks may be foreseeable, governments may also be at greater risk of facing legal claims about climate-related events, as I discussed in section 4.2.

Notably, climate change risks include the possible withdrawal of the insurance industry from some risk zones and increased pricing of insurance cover in other circumstances because of rising risk. It is reasonable that if changes occur in the industry as suggested, it will increase

the likelihood of government exposure to financial obligations in the event that climate change risks are realised. The SA Government has, for many years, obtained annual catastrophe reinsurance cover to mitigate budget risk. The South Australian Government Financing Authority's catastrophe reinsurance premium expense for 2020-21 was \$13.5 million (\$9.8 million in 2019-20), an increase of 38%. The increase was a result of the insurance market being forced to raise profitability and/or withdraw from writing unprofitable classes of insurance.<sup>53</sup>

The SA Government's unique role, its extensive asset ownership and the contingent exposure to liability in disaster events, creates an urgent need to develop knowledge, form views and transparently report about exposures from climate change risk.

When assessed, this should be included in financial reporting as information becomes available and meets relevant reporting criteria.

## 5.4 Australian Accounting Standards Board and Auditing and Assurance Standards Board

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AASB and Auditing and Assurance Standards Board (AUASB) standards and guidance provide clear frameworks for financial report preparers and auditors. In this sense, reporting and auditing obligations for climate change risks can and must be assessed and decided using the existing frameworks. Appropriate application of the frameworks will come from having a sufficient understanding of climate risks and developing reliable evidence to support assertions, representations and disclosures made about how climate risks affect financial report information.

In December 2018 (updated in April 2019), the AASB and AUASB issued a joint bulletin *Climate-related and other emerging risks disclosures: assessing financial statement materiality using AASB/IASB Practice Statement*.<sup>54</sup> It states that climate-related risks need to be considered for financial statements and not only as a matter of corporate social responsibility.

The bulletin provides information for preparers of financial statements when considering the level (if any) of disclosure of climate-related risks faced by the entity that could affect asset values, provisions and inputs to impairment testing.

This guidance, like the TCFD framework, was established with private sector users in mind. Importantly it notes that investors have specifically identified climate-related risks as being used in their decision making but not being addressed in annual reports. It also observes that existing and potential investors, creditors, insurers and customers are increasingly demanding more specific information about an entity's exposure to, and management of, climate-related risks.

### 5.4.1 Key recommendations for preparers

The AASB and AUASB joint bulletin makes two key recommendations for entities preparing financial statements, noting again that it was prepared with private sector users in mind.

Entities preparing financial statements in line with Australian accounting standards should consider:

- whether investors could reasonably expect that emerging risks, including climate-related risks, could affect the amounts and disclosures reported in the financial statements and have indicated the importance of such information to their decisions
- what disclosures about the impact of climate-related risks and other emerging risks on the assumptions are material to the financial statements.

The bulletin states that these recommendations relate to financial statement requirements and do not negate the need to consider reporting obligations in other parts of the annual report, such as the operating and financial review/management commentary or the corporate governance statement. Conversely, disclosures made in other documents will not compensate for disclosures that should be in the financial statements and are therefore subject to audit.

The principles in the key recommendations are relevant for public sector financial statement preparers.

#### 5.4.2 Deciding what is material may be complicated for climate change

Accounting information is considered material if omitting it or misstating it could adversely influence decisions that users make because of inaccurate or incomplete financial information about a reporting entity.

The materiality definitions and guidance highlight that:<sup>55</sup>

- deciding materiality is based on size (quantitative factors) and nature (qualitative factors), or a combination of both
- an item of information could influence primary users' decisions regardless of its size, and a quantitative threshold could even reduce to zero, such as when information about a transaction, other event or condition is highly scrutinised by the primary users.

Preparers will need to assess and decide whether to factor climate change into values reported in financial statements.

Preparers will also need to decide whether to explain how climate change has been considered in the financial statements.

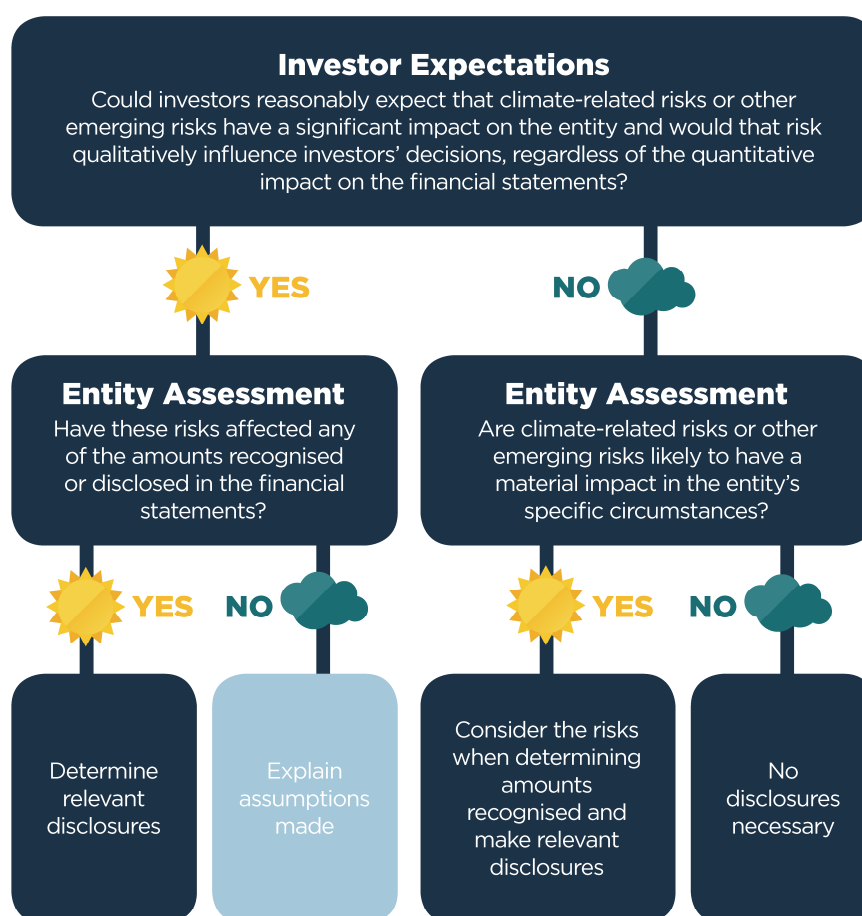
The bulletin states that, if appropriate and helpful for understanding, clear notes may need to be made about climate change not affecting financial statements.

#### Materiality decision tree for entities preparing financial statements

The AASB and AUASB joint bulletin has a materiality decision tree for financial report preparers that is shown in figure 5.2.



**Figure 5.2: Considerations for assessing materiality**



Source: AASB and AUASB joint bulletin, page 2.

### 5.4.3 Amounts reported in financial statements must meet the criteria

Reporting on climate-related effects in financial statements is complex, as there are inherent challenges in linking the risks to potential financial implications.

When determining whether implications should result in adjustments to financial statements and/or the recognition of additional liabilities, the requirements of accounting standards must be considered. These require the application of strict criteria beyond speculation. Key matters to address will include the following :

- Whether an asset is impaired or should otherwise be revalued downwards requires impairment/observable indicators that the asset's value has declined. There may be difficulties identifying whether a decline in value is primarily related to climate change or is a direct or indirect result of climate change.
- Liabilities for obligations are recognised only when the required criteria are met, namely:
  - there is a present obligation (legal or constructive) because of a past event
  - it is probable that an outflow of resources will be required to settle the obligation
  - a reliable estimate of the obligation amount could be made.

Even when the criteria are met, there will still be significant judgement required, as provisions are measured as the best estimate of the expenditure required to settle the present obligation, considering the risks and uncertainties of the obligation and, when the time value of money is material, discounting to present value.

To address these challenges, agencies will need to allocate sufficient time to develop their understanding of climate risks from TCFD-based or similar thorough assessments and use it to inform and support the assertions and representations they make in their agency financial reports.

Because of the complexity of the task, it is likely that guidance coordinated by the Department of Treasury and Finance and practice groups of relevant responsible people in agencies will be important. This should be a useful way to build knowledge and practice within the public sector, to enable efficient and effective reporting within reasonable time frames.

Where recognition criteria are not met, agencies should consider relevant disclosures.

#### 5.4.3.1 Disclosures should not be boilerplate

Climate change disclosures in financial statements should focus on specific issues and assumptions about the recognised amounts for climate change issues. Disclosures must also be verifiable by external audit. As such, they should not be boilerplate statements or of a general nature.

The AASB and AUASB joint bulletin emphasises key points for disclosures, including:

- disclosures should be made if that information is necessary for primary users to understand the impact of transactions, other events and conditions on the entity's financial position, financial performance and cash flows
- an entity may need to explain the judgements applied for climate change impacts. For example, where it has concluded that it was not necessary to factor climate change into the valuation assumptions, or how estimates of expected future cash flows, risk adjustments to discount rates or useful lives have, or have not, been affected by climate change
- entities should consider the common information needs of their primary users and focus on climate risk, if this was commonly considered a significant issue in the agency's operating environment.

General purpose financial statements do not, and cannot, provide all the information that primary users need.

Comments about an agency's approach to climate-related and other business risks could be included in documents outside the financial statements, such as annual reports discussed in sections 4.7 and 5.2.

## 5.4.4 Financial reporting considerations

Potential financial implications arising from climate-related and other emerging risks may include:

- asset impairment/obsolescence
- changes in the useful life of assets
- changes in the fair value of assets due to climate-related and emerging risks
- changes to costs or revenues
- potential provisions and contingent liabilities.

The following are some observations about asset values, provisions and liabilities.

### 5.4.4.1 Asset values

The State has significant value invested in infrastructure assets and other property, plant and equipment. The carrying value of those assets could be materially misstated if value calculations do not take the impact of climate-related risks into account.

Most public sector agencies value non-current tangible assets at fair value. Assets are formally revalued on a regular basis, up to every six years. Agencies are obliged to ensure that the carrying amount of their assets remains materially correct each year.

In making these assessments, agencies must consider whether there are any climate-related matters that mean the fair value of an asset differs materially from the carrying amount. This could be a result of either:

- physical obsolescence, such as physical damage from a climate event
- economic obsolescence, where assets have been deemed no longer suitable
- a change in environmental regulation that has an adverse effect on future cash flows
- a decrease in the residual values of older assets that have more emissions, as demand for these types of assets decline.

If at any time an agency's management considers the carrying amount of an asset materially differs from its fair value, the asset should be revalued, regardless of when the last valuation took place.

Where climate-related risks could have a significant impact on the entity's operations, information about how this has or has not been factored into asset value calculations would be relevant for the users of the financial statements. This is particularly the case for long-lived assets.

### 5.4.4.2 Provisions, contingent liabilities and contingent assets

As noted, the SA Government's unique role and exposure to climate change risks are primary drivers for developing knowledge and forming views about what the government of the day may be exposed to by climate change risk.

The AASB and AUASB joint bulletin emphasises:

- entities are required to provide a brief description of the nature of any contingent liability, and where practicable an estimate of its financial effect and an indication of the uncertainties relating to the outflow of resources to settle the obligation. Sources for contingent liabilities are potential litigation and fines/penalties due to stricter environmental and other regulations
- potential climate-related risks and uncertainties may also be considered in determining the best estimate of a provision. Entities must disclose the major assumptions made about future events, which may need to include an explanation of how climate-related risks have been factored into the best estimate of the provision. Provisions may be triggered by decommissioning assets or rehabilitating environmental damage, regulatory changes and contract provision.

## 6 Assurance considerations

### 6.1 Recommendations

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Agencies should start relating with their auditors to ensure there is a mutual understanding of climate change risks, how they affect agency financial reports and access to relevant information about them.

Agencies must ensure that information included in their financial reports achieves the appropriate recognition criteria and is supported by relevant authoritative evidence.

All public sector financial statements are subject to audit. It is vital that preparers know that, when forming an independent view and opinion about the financial statements, auditors must have access to all relevant information to obtain sufficient audit evidence.

### 6.2 The role of auditors

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When forming an opinion and reporting on a financial report, the auditor evaluates whether the financial statements are prepared, in all material respects, in line with the requirements of the applicable financial reporting framework.

The pervasive nature of climate change risk means that it needs to be understood and evaluated by the auditor to consider how it affects audit work and procedures. If climate-related risk has a significant impact on an agency and any material financial impact is recognised or disclosed in the financial statements, this information is audited.

Auditors will need to consider the implications of climate-related risk when performing risk assessment procedures to obtain an understanding of the agency, its environment, objectives, strategies and business risks, and the adequacy of its internal controls and risk management systems. This may include understanding:

- regulatory climate-related risk implications
- climate-related risk implications for assets and committed and proposed capital expenditure
- exposure to provisions and contingent liabilities from climate-related events.

Having gained that understanding, the auditor will identify and assess any risk of material misstatement. If it is apparent that preparers have not considered climate change risk, the auditor will need to make inquiries to be satisfied this is reasonable. If that test fails, there is audit risk.

Where the auditor identifies that climate-related risk may be relevant for accounting estimates, the auditor is expected to:

- respond to the assessed risks of material misstatement by evaluating the degree of estimation uncertainty associated with the estimate and test appropriately

- perform an overall evaluation, including the reasonableness of the estimate
- assess the adequacy of disclosures relating to estimates
- obtain written representations from management
- communicate with those charged with governance, management or other relevant parties about certain matters, as appropriate
- document the basis for their conclusion about the reasonableness of accounting estimates and indicators of possible management bias, if any.

The outcome for audit risk is the auditor's responsibility and judgement. It may lead to additional audit procedures and cost. If an audit cannot be reasonably performed, it could result in modifying audit opinions or disclaiming audit opinions when the auditor is unable to form a view on financial statement information.

Auditors will also consider other information presented outside the financial statements, such as annual reports, including the operating financial review and corporate governance statements. This is to understand if there is information about an agency that presents in a materially different or inconsistent way to the financial statements or the auditor's knowledge of an agency.

The ever-growing amount of information about the nature, extent and timing of climate-related risks means that this is an area that presents potentially significant risk to financial statement preparers and auditors.

# Appendix 1: Projected climate risks, challenges and opportunities for South Australia

## Higher temperatures



Maximum, minimum and average temperatures will continue to rise with more frequent hot days and longer warm spells.

## Drier with more time in drought



Autumn-spring rainfall has decreased by up to 20% in some agricultural areas. Further reductions and more time in drought is projected.

## More dangerous fire weather



Warmer and drier conditions will result in harsher fire weather, more days of severe and extreme fire danger and longer fire seasons.

## Rising sea levels



Sea level is rising with a projected increase of up to 0.8m by 2100. This will increase coastal erosion and flooding.

## More intense heavy rainfall events



Heavy rainfall events will increase in intensity, increasing the risk of flooding.

## Challenges for South Australia



Public health and safety risks from heatwaves and more frequent extreme weather events.



Risks to water security for agricultural, economic and environmental needs.



Risks for agriculture and fisheries



Greater damage and costs from more frequent and severe bushfires, heatwaves, floods and storms.



Economic changes from the transition to low emissions.



Risks to biosecurity and the natural environment

## Opportunities for South Australia



New low emissions industries and jobs



Innovative, climate smart agriculture



Electric and clean fuel transport



Attract investment and people to SA



Build business and community resilience



Increase carbon storage

Source: *Directions for a Climate Smart South Australia*, Department for Environment and Water, page 9.

## Appendix 2: Australian State and Territory net zero greenhouse gas emissions targets

Jurisdiction	Net zero target	Interim targets	Legislation	Review process	Limits on offsets	Independent expert advice	Accountability	Transparency
Australian Capital Territory	2045	40% by 2020, 50 to 60% by 2025, 65 to 75% by 2030, 90 to 95% by 2040 reduction on 1990 levels	<i>Climate Change and Greenhouse Gas Reduction Act 2010</i>	Independent report about GHG emissions and progress to target every year Review of Act after 5th and 10th years of operation	No limits specified in Act	Climate Change Council	Chief Minister Minister for Climate Action Minister for Water, Energy and Emissions Reduction	The Minister must present the report to Legislative Assembly within 21 days of receipt Websites
New South Wales	2050	35% emission reduction 2030	Not legislated (NSW Climate Change Policy Framework)		N/A	NSW Climate Change Council	Minister for Energy and Environment	Websites
Queensland	2050	2030 Target: 30% reduction on 2005 levels	Not legislated (Queensland Climate Action Plan 2030)	Action Plan 2030 announced July 2021	N/A	Queensland Climate Advisory Council	Minister for Environment and the Great Barrier Reef	Websites
South Australia	2050	50% reduction in net emissions (from 2005 emission levels) by 2030	<i>Climate Change and Greenhouse Emissions Reduction Act 2007</i> legislates 60% below 1990 levels by 2050	Minister is required, on a two-yearly basis, to prepare a report on the operations of the Act	Yes (emission offset programs must be within South Australia)	Premier's Climate Change Council Alternate year review by CSIRO or other independent	Minister for Climate Change and Water	Two-yearly reports Websites
Tasmania	2050	N/A	<i>Climate Change (State Action) Act 2008</i> legislates 60% below 1990 levels by 2050	Independent review on a four-yearly basis	No limits specified in Act	Independent review on a four-yearly basis	Premier and Minister for Climate Change	Four-yearly independent review reports of the operation of the Act Websites
Victoria	2050	2020: 15-20%, 2025: 28-33%, 2030: 45-50% reduction on 2005 levels. Five-yearly interim targets 2025 onwards to be set	<i>Climate Change Act 2017</i>	Report on achievement of each interim target within two years after the end of the interim period	No (any forestry, carbon sequestration or soil carbon rights in Victoria or outside Victoria can be eligible offsets)	Yes (at discretion of the Minister)	Premier Minister for Energy, Environment and Climate Change	Climate Science Report (five-yearly) Annual GHG emissions report End of interim target period report Websites



Jurisdiction	Net zero target	Interim targets	Legislation	Review process	Limits on offsets	Independent expert advice	Accountability	Transparency
Western Australia	2050	Contributing to Australia's international commitments	<i>Not legislated Climate Policy November 2020</i>	N/A	N/A	N/A	Minister for Environment; Climate Action; Commerce	Websites

1. The revised target of 2045, compared to the legislated target of 2050, was announced the Minister for Climate Change and Sustainability.

# Appendix 3: Definitions of prevention, preparedness, response and recovery for emergency responses



## Prevention

All activities concerned with minimising the occurrence of incidents, particularly those of human origin.

Regulatory and physical measures\* to ensure that emergencies are prevented, or their effects mitigated.

\*Measures to eliminate or reduce the incidence or severity of emergencies.

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## Preparedness

All activities undertaken in advance of the occurrence of an incident to decrease the impact, extent and severity of the incident and to ensure more effective response activities.

Arrangements to ensure that, should an emergency occur, all those resources and services that are needed to cope with the effects can be efficiently mobilised and deployed.

Measures to ensure that, should an emergency occur, communities, resources and services are capable of coping with the effects.

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## Response

Actions taken in anticipation of, during and immediately after an emergency to ensure that its effects are minimised, and that people affected are given immediate relief and support.

Measures taken in anticipation of, during and immediately after an emergency to ensure its effects are minimised.

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## Recovery

The restoring or improving of livelihoods and health, as well as economic, physical, social, cultural and environmental assets, systems and activities, of a disaster affected community or society, aligning with the principles of sustainable development and 'build back better', to avoid or reduce future disaster risk.

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Source: Government of South Australia 2021, *State Bushfire Management Plan 2021-2025*, pages 2-6.

In the case of bushfire management, these are the activities directed to the prevention, detection, damage mitigation and suppression of bushfires. It includes bushfire legislation, policy, administration, law enforcement, community education, training of fire fighters, planning, communications systems, equipment, research and field operations conducted by land managers and emergency services personnel relating to bushfire control.

# Appendix 4: The Task Force’s recommendations and supporting disclosures

Governance	Strategy	Risk management	Metrics and targets
<p>Disclose the organisation’s governance over climate-related risks and opportunities.</p> <p><b>Recommended disclosures</b></p>	<p>Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation’s businesses, strategy, and financial planning where such information is material.</p> <p><b>Recommended disclosures</b></p>	<p>Disclose how the organisation identifies, assesses and manages climate-related risks.</p> <p><b>Recommended disclosures</b></p>	<p>Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.</p> <p><b>Recommended disclosures</b></p>
<p>a) Describe the board’s oversight of climate-related risks and opportunities.</p> <p>b) Describe management’s role in assessing and managing climate-related risks and opportunities.</p>	<p>a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long-term.</p> <p>b) Describe the impact of climate-related risks and opportunities on the organisation’s businesses, strategy, and financial planning.</p> <p>c) Describe the resilience of the organisation’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.</p>	<p>a) Describe the organisation’s processes for identifying and assessing climate-related risks.</p> <p>b) Describe the organisation’s processes for managing climate-related risks.</p> <p>c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation’s overall risk management.</p>	<p>a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.</p> <p>b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas emissions, and the related risks.</p> <p>c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.</p>

Source: Recommendations of the Task Force on Climate-related Financial Disclosures, page 14.

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