

# **Discussion Paper on Tasmania's Climate Change Act**

*Independent Review of the  
Climate Change (State Action) Act 2008*



**March 2021**

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*Independent review of the Climate Change (State Action) Act 2008*

### **Jacobs ANZ Strategic Advisory Climate & Sustainability**

Jacobs Group (Australia) Pty Limited  
ABN 37 001 024 095  
100 Melville St  
Hobart, TAS 7000  
GPO Box 1725  
Hobart, TAS 7001  
Australia  
[www.jacobs.com](http://www.jacobs.com)

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### Your feedback

Questions are provided at the start of this discussion paper to prompt reflection and comment. The independent reviewers are keen to read your thoughts in response to any or all of these questions. Any other comments on issues relevant to the review's terms of reference are also welcomed.

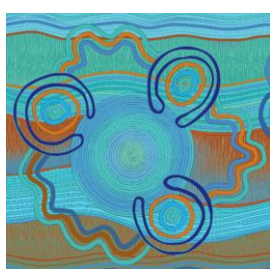
Submissions made in response to this discussion paper will be made publicly available on the Tasmanian Climate Change Office (TCCO) website. Please include your name and the name of your organisation (if applicable) in your submission. If you would like your submission to be treated in confidence, please note this in your submission. Defamatory or offensive material will not be published.

Written submissions to this discussion paper and general enquiries to the independent review for the Climate Change Act should be provided in writing by Thursday 29 April 2021 by email to:

[ConsultationTasmania@jacobs.com](mailto:ConsultationTasmania@jacobs.com)

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### Acknowledgement of Country



*Jacobs acknowledges and pays respect to the Tasmanian Aboriginal people as the traditional and original owners, and continuing custodians of this land and acknowledge Elders – past and present.*

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## Discussion Questions for Stakeholder Feedback

Please read the discussion paper and provide your responses to any or all of the questions below. Please include your name, organisation (if applicable) and your responses and any additional comments by email to [ConsultationTasmania@jacobs.com](mailto:ConsultationTasmania@jacobs.com)

If you would like your submission to be treated in confidence, please note this in your submission. Defamatory or offensive material will not be published.

### The Climate Change Act & State Government response to climate change

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1. To what extent should climate change considerations (e.g. greenhouse gas emissions, climate change impacts, climate resilience) influence policies and decisions by State government agencies and government business enterprises?
2. How important is it to you that the Tasmanian government systematically assess and disclose the main risks associated with projected climate change?
3. How might the Act provide you with confidence that successive State governments will continue to act to contain/reduce Tasmania's emissions and build climate resilience?
4. How might the Act drive further decarbonisation of the Tasmanian economy (e.g. via setting/legislating targets for sectors of the economy, potentially including interim targets)?
5. If the Act were to espouse principles that would guide consideration of climate change by government, its agencies and business enterprises, what might they be?

### Global Climate Action & Tasmania

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6. Within the context of global agreements to action to reduce greenhouse gas emissions, what do you consider to be the main roles of the Tasmanian government and how effective do you believe the government has been?
7. What would Tasmania be like in 10 years' time if it was a national or international leader in climate change responses?

### Low Carbon & Economy & Society

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11. What do you consider to be the main risks and opportunities for Tasmania as it continues to transition towards a low/zero carbon economy and society? What risks and opportunities may arise if Tasmania transitions more slowly/more rapidly?
12. What do you consider to be the main roles for State government in supporting Tasmania's low/zero carbon transition?

### Emissions Targets

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8. What would you consider to be an appropriate long-term greenhouse gas emissions or emissions reduction target for Tasmania (in terms of date and level of emissions or emissions reduction)?
9. What (if any) value do you think targets for specific sectors of the economy would offer, including for the sector itself? If you agree with the concept of sectoral emissions targets, which sectors should have emissions targets? Why?
10. What key factors should influence Government decisions to set State, sectoral and/or interim targets?

### Climate Resilience & Adaptation

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13. What do you consider to be the main roles for State government in supporting Tasmanian communities, infrastructure, economic activities and environments in becoming more resilient to projected climate change?

## 1. Overview

This discussion paper has been prepared to inform the third independent review of the *Climate Change (State Action) Act 2008* (the Act). It provides some background information on climate change action relevant to Tasmania to help you prepare written submissions to the independent review. It also includes feedback the review team have so far received from a survey and stakeholder workshops.

### 1.1 The Act and its Objectives

The purpose of the Act is to help Tasmania address the challenges of climate change and contribute to broader national and international responses to those challenges. The Act provides the legislative framework in Tasmania for action on climate change. Its primary objectives are to set and support action to achieve a target for greenhouse gas (GHG) emissions reduction. That target was to reduce the state's greenhouse gas emissions to 60% below 1990 levels by 31 December 2050. The Act includes provisions for regulation, measurement and reporting of emissions.

The Act also addresses climate change adaptation through its objects, although there are no specific targets, regulations or reporting requirements for this theme.

A four-yearly independent review cycle is incorporated into the Act, in December 2020 the Department of Premier and Cabinet commissioned Jacobs to deliver this third independent review.

### 1.2 The Independent Review

The review is to address requirements mandated in the Act, as well as matters directed by the Minister responsible for the Act (the Minister for Climate Change). Its scope includes:

- Evaluating the extent to which the objects of the Act are being achieved
- Consulting on options to revise Tasmania's emissions reduction target, based on the outcomes of the update to Tasmania's Emissions Pathway Review
- Assessing any additional legislative measures which may be necessary to achieve the targets set by the Act
- Examining whether the Act provides a sound foundation for action on climate change mitigation and adaptation by Tasmania's government, businesses and community
- Examining whether the Act provides a sound framework for consideration of climate-related risks and opportunities.

The review will consider these requirements in the context of international, national and State developments in climate change policy. Consistent with the Act, the review is being undertaken in consultation with relevant business, scientific and environmental organisation representatives, as well as members of the broader Tasmanian community.

Phase one of the consultation process focused on the role of the Act, emissions targets, transition to and opportunities in a low carbon economy, and impacts as a consequence of climate change. Engagement was undertaken through a survey, targeted discussions with key business, industry or community groups and on-line community workshops that were open to members of the public

Samples of input provided during a community-based workshop may be viewed by following the link below:

[Community Workshop Sample](#)

This discussion paper and the written submissions provided will form the second phase of the consultation process.

A Final Report comprising findings from consultation and the review team's own research and analysis, together with recommended actions for consideration by the Tasmanian government will be submitted in mid-2021 and will be tabled in Parliament.

### 1.3 The 2016 Independent Review of the Act

The [second review of the Act in 2016](#) made five recommendations to the Tasmanian State Government. These were to:

1. Set a target of net zero emissions (NZE) by 2050.
2. Consolidate the objects of the Act around four themes, namely; targets and reporting, actions to reduce greenhouse gas emissions, adaptation to projected climate change, and complementarity with national and international climate change initiatives.
3. Require state government agencies to consider the contents of the Act in relevant decision making.
4. Include a set of principles to give greater effect to intent of the Act and provide a set of expectations for government decision making.
5. Make a climate change action plan a statutory requirement.

These recommendations were accepted by the Tasmanian Government, recommendations #3 and #5 accepted in principle only.

Following the review, the government commissioned an analysis of the State's likely future emissions across key sectors to assess the state's capacity to achieve and maintain net zero emissions. The Tasmanian Government consulted Tasmanian Government agencies, business, industry and the community on the recommendations. There was strong community feedback to set an ambitious emissions reduction target for Tasmania. The 2016 recommendations will be considered as part of the current independent review of the Act, alongside recent climate change developments.

### 1.4 The Role of Sub-national Governments

The Paris Agreement recognises the important role of sub-national governments in responding to climate change.

State and Territory governments in Australia have some control or influence over many of the areas where mitigation action is possible, such as energy generation, rail and road transport, energy efficiency in the built environment, vegetation based carbon sequestration, water and wastewater treatment and waste management. Collectively, State and local governments are responsible for land use, infrastructure and environmental planning; water and natural resource management and the provision of health and emergency management services. As a result, they play an essential role in building the resilience of communities, the economy and natural environments to climate change.

The Subnational Global Climate Leadership Memorandum of Understanding ("[Under 2 MOU](#)"<sup>1</sup>) was developed ahead of COP21 in 2015 to build momentum for greater national ambitions on reducing greenhouse gas emissions. Under 2 MOU brings together sub-national governments who commit to reducing emissions to 80-95% below 1990 levels by 2050 or to achieving per capita emissions of less than two tonnes by 2050. Parties also commit to working collaboratively on a variety of issues of applicable to climate change mitigation and adaptation. South Australia, Victoria, Queensland, ACT, and Northern Territory are the Australian signatories to this agreement.

Currently, all Australian State and Territories have net zero commitments through legislation or other means.

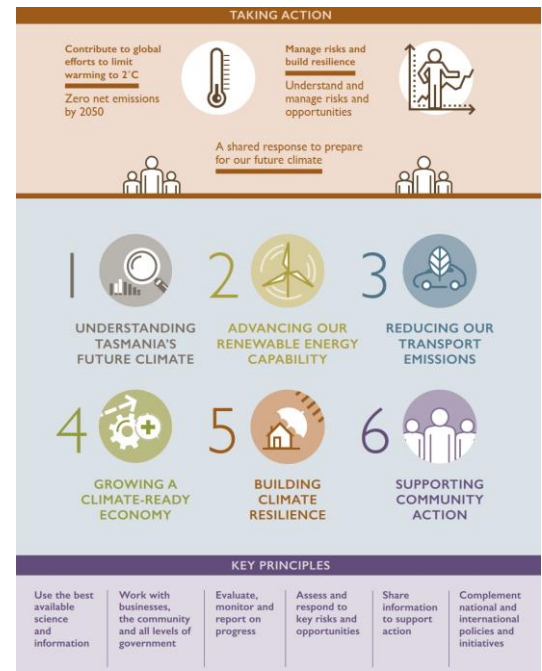


Figure 1. Climate Action 21 overview.

<sup>1</sup> The Climate Group (2017). Under2 Memorandum of Understanding. Retrieved from [theclimategroup.org: https://www.theclimategroup.org/under2-memorandum-understanding](https://www.theclimategroup.org/under2-memorandum-understanding)

## 2. Climate Change Legislation

### 2.1 National Climate Policy

Currently there is no national climate change legislation, however climate change related policies and initiatives have been introduced by the Australian Government that seek to address impacts of climate change. These include:

- The Nationally Determined Contribution (NDC) which states Australia's commitment under the Paris Agreement. This includes the setting of the national economy-wide target of reducing GHG emissions by 26 – 28% below 2005 levels by 2030
- Establishment of the Climate Change Authority which is independent statutory body that provides expert advice to the Australian Government on climate change matters.
- The Climate Solutions Package which includes; the Climate Solutions Fund (formerly the Emissions Reduction Fund) which provides financial incentives for businesses, landholders and communities to reduce emissions, support towards energy efficiency measures across homes, businesses and communities, funding toward a national strategy for electric vehicles, and further support for pumped-hydro projects such as Marinus Link.

The Australian Government has introduced other legislation that contributes to, in varying ways, the national response to climate change. Such legislation has led to the establishment of the Clean Energy Finance Corporation, the Australian Renewable Energy Agency, and the National Greenhouse and Energy Reporting Scheme.

### 2.2 Climate Change Legislation in Australian States and Territories

Tasmania is one of four Australian jurisdictions (with South Australia, Victoria and ACT) with specific legislation to promote action: on the abatement of greenhouse gas emissions (mitigation); and to reduce the impacts of actual or projected climate change (adaptation). While there are differences in the scope and emphasis of legislation in each jurisdiction, some or all share these key features:

- *Economy-wide greenhouse gas emissions reduction targets:* several jurisdictions set additional targets, with South Australian legislation specifying a renewable energy generation target and ACT legislation setting interim and per person targets. Victoria makes use of a carbon budgeting process in which to address interim emissions reductions.
- *Common objectives:* legislative or policy objectives have consistent themes of: target-setting; assisting communities and business to take action and capture opportunities; reporting on progress; and alignment with national and international developments. The objects of South Australian climate change legislation are similar to Tasmania's in respect of energy conservation, R&D and consultation with community and business to facilitate action. Victorian climate change legislation places particular emphasis on managing risk, building resilience and adaptation.
- *Inter and intra-generational equity:* South Australian and Victorian legislation is underpinned by concept of equity within and between generations, with decisions to be based on the precautionary principle and best available science.
- *Governance:* South Australian, Victorian and ACT legislation, to varying extents, specify the functions of the Minister and how they are required to discharge their responsibilities under their Acts. Legislation in South Australia and ACT also establish independent bodies to advise the Minister on climate change issues.
- *Sector agreements:* for emissions reductions are provided for under ACT and South Australian climate change legislation. Victorian legislation provides for "pledges" by State government to reduce sectoral emissions and for local government authorities to pledge to reduce their own emissions.
- *Parliamentary reporting:* legislation in each jurisdiction requires that progress on climate change periodically report to parliament. This reporting includes reports on greenhouse gas emissions and operation of their respective Acts.

Table 1. Examples of Australian state climate change legislation and policy.

Jurisdiction	Key legislative features	Emissions Targets	Legislative mechanisms for Climate Change Mitigation	Legislative mechanisms for Climate Change Adaptation
<i>Climate Change (State Action) Act 2008 (Tasmania)</i> <sup>2</sup>	<p>The Objects of the Act emphasise four main themes;</p> <ul style="list-style-type: none"> <li>• <i>GHG emissions targets and reporting</i> including the setting of a whole-of-State emissions target and allowing for interim and sectoral targets; and provides for progress towards emissions targets being reported to parliament.</li> <li>• <i>Actions to reduce GHG emissions</i> where the Act specifically refers to promotion of energy efficiency and conservation and development of low emissions and carbon sequestration technologies. Support for action by businesses and communities in taking advantage of these technologies is provided for in the Act also.</li> <li>• Adaptation to projected climate change through supporting adaptation to climate-related risks and encourages action (including research) to take advantage of any opportunities.</li> <li>• Complementarity with national and international climate change developments</li> </ul> <p>Please refer to Appendix B for the full list of the Objects.</p>	<p>60% below 1990 levels by 2050</p> <p><i>Non-legislated State Government commitment for NZE by 2050</i></p>		
<i>Victorian Climate Change Act 2017</i> <sup>3</sup>	<p>Purpose of the Act includes:</p> <ul style="list-style-type: none"> <li>• Setting of a long-term emissions reduction target and interim targets</li> <li>• Embed climate change considerations in government decision making and setting of policy objectives</li> <li>• Development of strategic responses to climate change; including the development of a climate change strategy every 5 years</li> <li>• Clarity of information collection and reporting</li> <li>• Contribute to carbon sequestration efforts</li> </ul>	<p>State NZE target by 2050</p> <ul style="list-style-type: none"> <li>• Setting of 5-yearly interim targets</li> </ul>	<p>Pledge model created where Ministers responsible for whole-of-government operations and key sectors are to include policy measures that government will implement to reduce emissions reductions.</p> <ul style="list-style-type: none"> <li>• Emissions reduction pledges must be prepared describing actions and their estimated emissions reductions</li> </ul>	<p>Adaptation action plans to be developed by the relevant Minister every 5 years for the following systems:</p> <ul style="list-style-type: none"> <li>• The built environment</li> <li>• Education and training</li> <li>• Health and human services</li> <li>• The natural environment</li> <li>• Primary production</li> <li>• Transport</li> </ul>

<sup>2</sup> The Department of Premier and Cabinet. (2014, September 14). Climate Change (State Action) Act 2008. Retrieved from [legislation.tas.gov.au](http://legislation.tas.gov.au): <https://www.legislation.tas.gov.au/view/whole/html/inforce/current/act-2008-036>

<sup>3</sup> State Government of Victoria. (2020, June 1). Climate Change Act 2017. Retrieved from [content.legislation.vic.gov.au](http://content.legislation.vic.gov.au): <https://content.legislation.vic.gov.au/sites/default/files/2020-05/17-5aa005%20authorised.pdf>



Jurisdiction	Key legislative features	Emissions Targets	Legislative mechanisms for Climate Change Mitigation	Legislative mechanisms for Climate Change Adaptation
	<ul style="list-style-type: none"> <li>Provide for the creation of forestry, carbon, and soil carbon rights and relevant Agreements</li> </ul>		<p>This model includes the provision of voluntary pledges for local governments, organisations, businesses and members of the public community</p> <p>Establish a framework for forestry, carbon sequestration, and soil carbon rights as well as Carbon Sequestration Agreements</p>	<ul style="list-style-type: none"> <li>The water cycle</li> </ul>
<i>Climate Change and Greenhouse Gas Emissions Reduction Act 2007 (South Australia)</i> <sup>4</sup>	<p>Objects of the Act include:</p> <ul style="list-style-type: none"> <li>Setting of emissions reduction and renewable energy targets</li> <li>Promotion of commitment within the State to address climate change</li> <li>Encourage energy efficiency and conservation</li> <li>Promote research and development (R&amp;D) towards climate change mitigation and adaptation</li> <li>Encourage commercialisation of renewable energy and mitigation technologies</li> <li>Encourage and facilitate business and community consultation and action on climate change</li> <li>Support adaptation measures</li> <li>Complementarity with national and international developments in climate change</li> </ul> <p>Sector Agreements for partnership between State Government and entities on climate action</p> <p>Establish the Premier's Climate Change Council</p>	<p>60% below 1990 levels by 2050</p> <p>***Govt commitment NZE 2050, 50% by 2030 against 2005 levels</p>	<p>Renewable energy targets set as follows:</p> <ul style="list-style-type: none"> <li>20% renewable energy generation by 2015</li> <li>20% renewable energy consumption by 2015</li> </ul> <p>Preparation of reports against the progress and operation of the Act every two years, including:</p> <ul style="list-style-type: none"> <li>Assessment of emissions reduction strategies and their progress and effectiveness</li> <li>Progress against emissions reduction and renewable energy targets</li> <li>Summary of emissions reduction and removal technologies</li> </ul>	<p>Preparation of reports against the progress and operation of the Act every two years, including any relevant developments on current and expected future climate change impacts</p>
<i>Climate Change and Greenhouse Gas</i>	<p>The Objects of the Act include:</p> <ul style="list-style-type: none"> <li>Setting of emissions reduction and renewable energy use and generation targets</li> </ul>	<p>NZE by 2045 with interim targets:</p> <ul style="list-style-type: none"> <li>40% by 2020</li> <li>50 to 60% by 2025</li> </ul>	<p>Target set for the use of renewable electricity in the ACT of 100% by 2020</p> <p>Sector agreements seek to reduce energy use, increase use of renewable energy</p>	<p>Included in the Objects (c) and (d) of the Act in developing policies and programs, and encouraging</p>

<sup>4</sup> Office of Parliamentary Counsel. (2007). Climate Change and Greenhouse Emissions Reduction Act 2007. Retrieved from [legislation.sa.gov.au](https://www.legislation.sa.gov.au/LZ/C/A/CLIMATE%20CHANGE%20AND%20GREENHOUSE%20EMISSIONS%20REDUCTION%20ACT%202007.aspx): <https://www.legislation.sa.gov.au/LZ/C/A/CLIMATE%20CHANGE%20AND%20GREENHOUSE%20EMISSIONS%20REDUCTION%20ACT%202007.aspx>

Jurisdiction	Key legislative features	Emissions Targets	Legislative mechanisms for Climate Change Mitigation	Legislative mechanisms for Climate Change Adaptation
<i>Reduction Act 2010 (ACT)</i> <sup>5</sup>	<ul style="list-style-type: none"> <li>Provide for the monitoring and reporting on progress against targets</li> <li>Facilitate the government’s development of policies and programs to meet the targets and adapt to climate change</li> <li>Encourage private entities to take action to address climate change, and to recognise such action</li> </ul> Establishment of a Climate Change Council and sector agreements are also featured in this Act	<ul style="list-style-type: none"> <li>65 to 75% by 2030</li> <li>90 to 95% by 2040</li> </ul> The Act also sets a GHG emissions produced per person target to peak in 2013	sources, or carry out avoidance or mitigation activities.	private entities to address and adapt to climate change. The Climate Change Council is to advise the Minister on addressing, and adapting, to climate change.

### 2.3 International Legislation

The following examples of international climate change legislation and policy help to benchmark climate change legislation enacted by Australian state governments.

Table 2. Examples of international climate change legislation and policy.

Jurisdiction	Key legislative features	Emissions Targets	Legislative mechanisms for Climate Change Mitigation	Legislative mechanisms for Climate Change Adaptation
<i>Climate Change Response (Zero Carbon) Amendment Act 2019 (New Zealand)</i> <sup>6</sup>	The Purpose of the Act is to: <ul style="list-style-type: none"> <li>Contribute to the global effort under the Paris Agreement to limit the global warming to 1.5°C</li> <li>Allow New Zealand to prepare for, and adapt to, the effects of climate change</li> </ul> Establishment of an independent Climate Change Commission  Consideration is to be made to First Nations (iwi and Māori) in the nomination and appointment of members for the Climate Change Commissions, in	NZE by 2050 (excl biogenic methane) <ul style="list-style-type: none"> <li>Setting of 5 yearly carbon budgets</li> <li>Biogenic methane targets:                             <ul style="list-style-type: none"> <li>24-47% by 2050</li> <li>10% by 2030</li> </ul> </li> </ul>	Preparation of an emissions reduction plan for meeting the next carbon budget – following its determination and prior to the commencement of its period. The plan is to include: <ul style="list-style-type: none"> <li>Sector-specific strategies for emissions reductions and removals</li> <li>Multi-sector strategies</li> <li>Strategy to mitigate any impacts caused by mitigation action</li> <li>Any other matters the Minister deems necessary</li> </ul>	A national climate change risk assessment is to be completed no later than 6 years following the release of the previous assessment A national adaptation plan must be prepared in response to the climate change assessment and include; <ul style="list-style-type: none"> <li>The Government’s objectives for adaptation</li> <li>The Government’s strategies, policies, and proposals for meeting these objectives</li> </ul>

<sup>5</sup> ACT Parliamentary Counsel. (2019, June 15). Climate Change and Greenhouse Gas Reduction Act 2010 . Retrieved from legislation.act.gov.au: <https://www.legislation.act.gov.au/a/2010-41/>

<sup>6</sup> Parliamentary Counsel Office. (2019, November 13). Climate Change Response (Zero Carbon) Amendment Act 2019. Retrieved from legislation.govt.nz: <https://www.legislation.govt.nz/act/public/2019/0061/latest/LMS183736.html>

Jurisdiction	Key legislative features	Emissions Targets	Legislative mechanisms for Climate Change Mitigation	Legislative mechanisms for Climate Change Adaptation
	the preparation of an emissions reduction plan, and the preparation of a national adaptation plan.		Climate Change Commission to report annually on results from monitoring on progress against targets and budgets	<ul style="list-style-type: none"> <li>Time frames for implementing strategies, policies, and programs</li> <li>Measures and indicators enabling monitoring and reporting of progress</li> </ul>
<i>Climate Change Act 2008 (UK)</i> <sup>7</sup>	Establishment of a Committee on Climate Change to provide advice on the relevance of the 2050 target, the setting and meeting of carbon budgets, emissions from international aviation and shipping, and reporting on progress towards budgets and targets.	NZE by 2050 (excl. international aviation and shipping) <ul style="list-style-type: none"> <li>68% interim target for 2030</li> <li>Setting of 5-yearly carbon budgets</li> </ul>	Proposal and policies are to be developed for meeting carbon budgets and must be reported on. An annual statement of UK emissions must be completed. Domestic carbon trading scheme for limiting, reducing and removal of emissions	Assessment of the risks of current and predicted impacts of climate change to be completed every 5 years with an adaptation programme to be developed following the assessment
<i>The Climate Act 2019 (Denmark)</i> <sup>8</sup>	Comprehensive Climate Programme developed for Parliament on an annual basis Independent Danish Council on Climate Change (successive candidates are elected by the Council)	NZE by 2050 <ul style="list-style-type: none"> <li>Interim target of 70% by 2030</li> <li>Rolling interim 5-year targets set 10 years in advance and cannot be less ambitious than the last target set</li> </ul>	Climate Programme is to include; <ul style="list-style-type: none"> <li>short-term and long-term initiatives (and their projected effect),</li> <li>R&amp;D of new initiatives</li> <li>status against national and international targets</li> </ul>	Climate Programme is to include; <ul style="list-style-type: none"> <li>Status report on climate science</li> <li>R&amp;D of new climate initiatives</li> </ul>
<i>Global Warming Solutions Act 2006 (California)</i> <sup>9</sup>	Implementation of this law led by the California Air Resources Board (CARB) and is supported by the Climate Action Team made up of relevant state agencies	NZE by 2045 Return to 1990 levels by 2020 40% below by 2030	Cap-and-trade multi-sector emissions trading scheme	

<sup>7</sup> UK Government. (2008). Climate Change Act 2008. Retrieved from legislation.gov.uk: <https://www.legislation.gov.uk/ukpga/2008/27/contents>

<sup>8</sup> Danish Ministry of Climate, Energy and Utilities. (2020, June 26). Climate law. Retrieved from retsinformation.dk: <https://www.retsinformation.dk/eli/lta/2020/965>

<sup>9</sup> Legislative Counsel. (2006, September 27). AB-32 Air pollution: greenhouse gases: California Global Warming Solutions Act of 2006. Retrieved from leginfo.legislature.ca.gov: [https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=200520060AB32](https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200520060AB32)

Jurisdiction	Key legislative features	Emissions Targets	Legislative mechanisms for Climate Change Mitigation	Legislative mechanisms for Climate Change Adaptation
<i>Clean Energy Package 2019 (Washington)</i> <sup>10</sup>			<ul style="list-style-type: none"> <li>• 100% Clean energy by 2030</li> <li>• First of its kind energy standard for new and existing commercial buildings</li> <li>• Incentivising uptake of EVs and charging infrastructure</li> </ul>	

**Stakeholder Feedback we have heard on Climate Change Legislation**

- The Act should seek to decarbonise across all sectors
- The Act should consider the value of its carbon sinks and native forests
- The Act should be more detailed, clear and direct to ensure it drives climate action
- Ensure the Act enables Tasmania to become a leader on climate change
- The Act needs to promote and drive effective climate adaptation

<sup>10</sup> Inslee, J. (2018). *POWERED BY INNOVATION, WASHINGTON CAN FIGHT BACK AGAINST CLIMATE CHANGE*. Retrieved from <https://www.governor.wa.gov/sites/default/files/climate-change-package-overview-policy-brief.pdf>

### 3. Global Climate Action

#### 3.1 Developments since the Paris Agreement

Global action on climate change is pursued under the United Nations Framework Convention on Climate Change (UNFCCC), an agreement among 197 countries (“Parties” to the Convention) to prevent “dangerous” human interference with the climate system. Most countries have created laws which specifically address climate change mitigation and three-quarters of the world’s annual greenhouse gas emissions are now covered by national targets. While the level of “stretch” in targets varies between nations, many countries are actively pursuing policies to achieve their emissions reduction target.

A landmark UNFCCC Conference of the Parties (COP21 in Paris, December 2015) achieved an in-principle agreement to;

- Reach the peak in global greenhouse gas emissions as soon as possible
- Pursue rapid reductions in emissions to limit global warming to less than 2°C above pre industrial levels; and
- Pursue efforts to limit temperature increases to 1.5°C. The Paris Agreement calls for net zero emissions to be reached during the second half of the 21<sup>st</sup> Century.

The United Kingdom will host COP26 in Glasgow in November 2021. World leaders will report on progress since the Paris Agreement and seek to further advance global climate action.

The setting of net zero emissions pledges and targets by national governments surged during 2020, including by some of the world’s largest economies, such as; USA, China (NZE 2060), Japan, the European Union, Canada, South Africa and South Korea. If realised, these commitments would reduce projected global warming by a 0.5°C to 2100.<sup>11</sup>

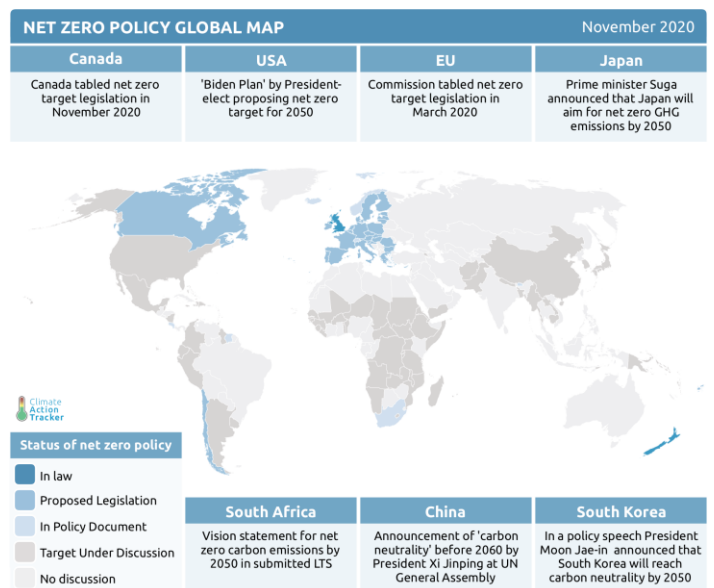


Figure 4. Net Zero Policy Global Map. (Climate Action Tracker, 2020)

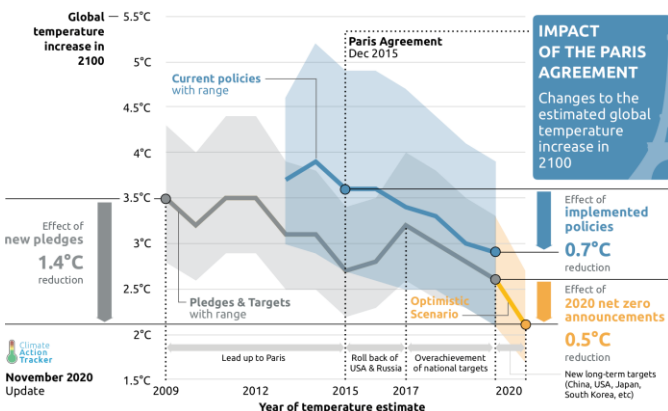


Figure 2. Impact of the Paris Agreement. (Climate Action Tracker, 2020)

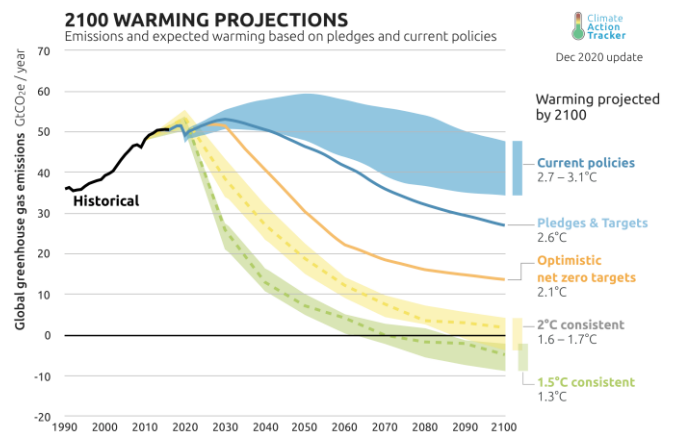


Figure 3. 2100 Warming Projections. (Climate Action Tracker, 2020)

<sup>11</sup> Climate Action Tracker (2020, December 1). Global update: Paris Agreement Turning Point. Retrieved from <https://climateactiontracker.org/publications/global-update-paris-agreement-turning-point/>

### 3.2 Developments in Climate Science

Scientific evidence of the need to act on climate change and reduce greenhouse gas emissions associated with human activities has been building for decades. In their [Fifth Assessment Report](#)<sup>12</sup> (AR5), the Intergovernmental Panel on Climate Change (IPCC) asserted that there is “unequivocal” evidence of increased concentrations of greenhouse gases in the atmosphere and consequent warming of the climate system. Most observed changes in the global climate system since the mid-20th century are attributable to human influences. The IPCC found that continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system. Global warming of more than 2°C above 1850-1900 levels is considered to constitute “dangerous climate change”.

The IPCC released a Special Report in 2018 on [‘Global Warming of 1.5°C’](#)<sup>13</sup> the level of warming which is likely to be reached, on current trends, between 2030 and 2052. It is also the “stretch” target for the Paris Agreement. The report highlights the differences in climate characteristics and impacts, even between 1.5°C and 2°C of warming. These include;

- Robust differences in climate characteristics (increased mean temperatures, hot extremes in most inhabited regions, increased rainfall intensity, increased drought conditions)
- Greater impacts to marine and terrestrial biodiversity and ecosystems, including species loss
- Increased climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth; and
- Heightened adaptation needs that may be countered by limits to adaptation and adaptive capacity for some human and natural systems.



Figure 5. Cover of “Special Report: Global Warming of 1.5°C”. (IPCC, 2018)

The modelled emissions pathways that would limit warming to 1.5°C have net emissions declining by about 45% from 2010 levels by 2030 and reaching net zero by about 2050. These pathways require rapid and far-reaching transitions in energy, land, urban, infrastructure, and industrial systems and imply deep emissions reductions in all sectors. They all include varying degrees of removal of carbon dioxide from the atmosphere.

The IPCC is set to release its [Sixth Assessment Report](#) (AR6)<sup>14</sup> from 2022. Reporting will update science on the physical basis of climate change, climate change impacts and adaptation and climate change mitigation.

### 3.3 Responses from Business and Industry

Developments in scientific knowledge and global advancements on climate change policy, such as the Paris Agreement, have led to increased private sector focus on climate change. Recognising this, the international body responsible for the health of the global financial system, the G20’s Financial Stability Board, established the industry led [Task Force on Climate-related Financial Disclosures](#) (TCFD) in 2015. Their role was to identify the information necessary for appropriately assessing and pricing climate-related risks and to develop voluntary climate-

<sup>12</sup> Intergovernmental Panel on Climate Change. (2014). AR5 Synthesis Report: Climate Change 2014. Retrieved from [ipcc.ch: https://www.ipcc.ch/report/ar5/syr/](https://www.ipcc.ch/report/ar5/syr/)

<sup>13</sup> IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press.

<sup>14</sup> Intergovernmental Panel on Climate Change. (2021). AR6 Synthesis Report: Climate Change 2022. Retrieved from [ipcc.ch: https://www.ipcc.ch/report/sixth-assessment-report-cycle/](https://www.ipcc.ch/report/sixth-assessment-report-cycle/)

related disclosures that would be useful for investors and others in understanding material risks and promote more informed financial decision making.

In 2017, the TCFD released its [final recommendations](#)<sup>15</sup> which provide a framework for companies and other organisations to develop more effective climate-related financial disclosures through existing reporting processes. The TCFD recommend organisations appropriately account for climate-related risks, highlighting the potential financial implications of climate change resulting from potential physical impacts of amplified natural hazards and the widespread transition to a low carbon economy (e.g. cash stranded assets).

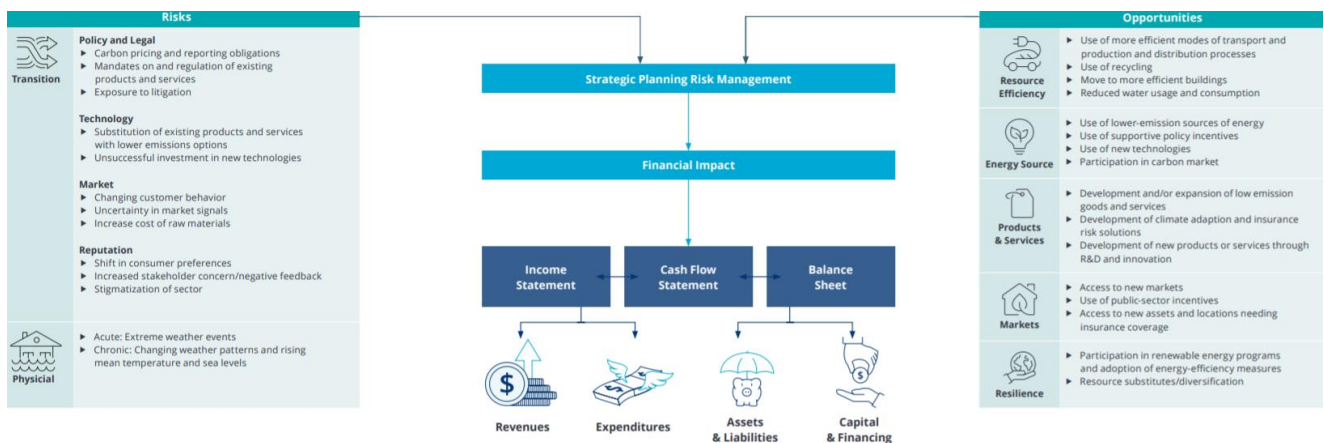


Figure 6. Climate-Related Risks, Opportunities, and Financial Impact. (Task Force on Climate-related Financial Disclosures, 2018)

The Australian Prudential Regulation Authority (APRA) in early 2020 released a [letter to all APRA-regulated entities](#)<sup>16</sup>, encouraging the adoption of the TCFD and other voluntary frameworks to better assist entities with assessing, managing and disclosing their financial risks associated with climate change.

APRA highlight that there is a need to address the climate data deficit, to quantify the likely impact of the physical, traditional and liability risks of climate change and accurately assess and appropriately price these risks. APRA note that business entities should be proactive in taking steps to assess and mitigate climate change financial risks now, and not delay action until further guidance from APRA is released.

The Centre of Policy Development also discuss the necessity of response to climate change from the private sector, noting the obligations on company directors to recognise and manage impacts of physical, transition and litigation risks resulting from climate change. In this [Supplementary Memorandum of Opinion \(2019\)](#)<sup>17</sup> it is noted that there is a profound and accelerating shift in the way that Australian regulators, firms and the public perceive climate risk and that there is acute interest in climate change issues from investor groups. As time passes, the benchmark

<p><b>Governance</b></p> <p>Disclose the organization's governance around climate-related risks and opportunities.</p> <p><b>Recommended Disclosures</b></p> <ol style="list-style-type: none"> <li>Describe the board's oversight of climate-related risks and opportunities.</li> <li>Describe management's role in assessing and managing climate-related risks and opportunities.</li> </ol>	<p><b>Strategy</b></p> <p>Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy and financial planning where such information is material.</p> <p><b>Recommended Disclosures</b></p> <ol style="list-style-type: none"> <li>Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.</li> <li>Describe the impact of climate-related risks and opportunities on the organization's business, strategy, and financial planning.</li> <li>Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.</li> </ol>
<p><b>Risk Management</b></p> <p>Disclose how the organization identifies, assesses, and manages climate-related risks.</p> <p><b>Recommended Disclosures</b></p> <ol style="list-style-type: none"> <li>Describe the organization's processes for identifying and assessing climate-related risks.</li> <li>Describe the organization's processes for managing climate-related risks.</li> <li>Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.</li> </ol>	<p><b>Metrics and Targets</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> <ol style="list-style-type: none"> <li>Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.</li> <li>Disclose Scope 1, Scope 2, and if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.</li> <li>Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.</li> </ol>

Figure 7. Recommendations and Supporting Recommended Disclosures. (Task Force on Climate-related Financial Disclosures, 2018)

<sup>15</sup> Task Force on Climate-related Financial Disclosures. (2018). Recommendations of the Task Force on Climate-related Financial Disclosures. Retrieved from [fsb-tcfd.org/recommendations/](https://www.fsb-tcfd.org/recommendations/)

<sup>16</sup> Summerhayes, G. (2020, February 24). Understanding and managing the financial risks of climate change. Retrieved from [apra.gov.au/understanding-and-managing-financial-risks-of-climate-change](https://www.apra.gov.au/understanding-and-managing-financial-risks-of-climate-change)

<sup>17</sup> The Centre for Policy Development. (2019, March 26). Supplementary Memorandum of Opinion. Retrieved from [cpd.org.au/wp-content/uploads/2019/03/Noel-Hutley-SC-and-Sebastian-Hartford-Davis-Opinion-2019-and-2016\\_pdf.pdf](https://cpd.org.au/wp-content/uploads/2019/03/Noel-Hutley-SC-and-Sebastian-Hartford-Davis-Opinion-2019-and-2016_pdf.pdf)

for consideration to climate change risks by firms and their directors is rising.

This Memorandum of Opinion concludes that it is increasingly obvious that climate change is and will inevitably affect the economy and, as such, the exposure of individual directors to “climate change litigation” is increasing, probably exponentially, with time. Australia has had over 100 climate change cases heard and are primarily focused around human rights violations and being part of strategies against fossil fuel companies and large emitters. Organisations such as larger corporate entities, utility providers, and government business enterprises can be exposed, without undertaking an appropriate level of climate action, to shareholders, individuals and regulatory bodies who view their failure to act, or adverse impacts, on positive climate action.

International ratings agencies are now assessing how jurisdictions are considering climate change impacts as part of its process to determine credit ratings.

### 3.4 Climate Action by the Commonwealth Government

Australia’s commitment under the Paris Agreement, to reduce economy-wide greenhouse gas emissions by 26–28% below 2005 levels by 2030, has led to the introduction of a suite of climate change related strategies and initiatives at a federal level which seek to meet this target but also provide for supporting climate resilience.

The 2020 statements contain 18 low emissions technologies identified to provide cost-effective, emissions reduction outcomes for Australia. The first statement was released in 2020 and outlines a vision centred around :

- Delivery of more affordable, clean and reliable energy;
- Job creation and reducing emissions from primary industries;
- Expanding onshore manufacturing and capturing new export markets for low emissions products and commodities; and
- Scaling geological and biological carbon sequestration.

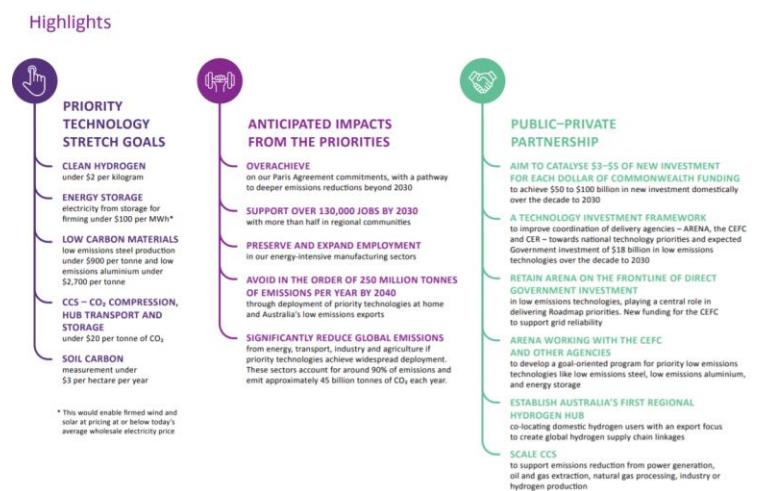


Figure 8. Highlights of the Technology Investment Roadmap.

This statement builds on other Commonwealth Government initiatives such as the Climate Solutions Package and the National Hydrogen Strategy, with the roadmap highlighting clean hydrogen as a priority investment technology.

Through vehicles such as the Clean Energy Finance Corporation and ARENA, the Commonwealth Government has been able to finance and drive investment in renewable energy projects and technologies as well as low-emissions solutions across agriculture, clean technologies, energy generation and storage, infrastructure, property, transport and waste.

The Commonwealth Government is currently developing its national Long-term Emissions Reduction Strategy, which will be taken to COP26 in Glasgow later in 2021. In 2015, the Australian Government released a [National Climate Resilience and Adaptation Strategy](#)<sup>19</sup>, assessing how Australia is managing the risks presented by climate change and identifying a set of principles to guide climate change adaptation and building resilience in the country.

<sup>18</sup> Department of Industry, Science, Energy and Resources. (2020). Technology Investment Roadmap: First Low Emissions Technology Statement 2020. Retrieved from industry.gov.au: <https://www.industry.gov.au/data-and-publications/technology-investment-roadmap-first-low-emissions-technology-statement-2020>

<sup>19</sup> Department of Agriculture, Water and the Environment. (2015). National Climate Resilience and Adaptation Strategy. Retrieved from environment.gov.au: <https://www.environment.gov.au/climate-change/adaptation/strategy>



## 4. Emissions Targets

### 4.1 State Emissions Profiles and Targets

With the Northern Territory announcing its net-zero emissions by 2050 target in July 2020, all Australian States and Territories have now committed to achieving net zero emissions by or before 2050. Victoria and the ACT are the only jurisdictions to enshrine their net zero emissions targets in legislation. Legislated targets for Tasmania and South Australia are currently 60% below 1990 emissions levels by 2050.

The emissions profile and trajectory for each Australian State and Territory varies. Energy is the leading source of emissions in all jurisdictions, with agriculture generally next placed. Emissions associated with the land use change forestry sector vary widely, with large net emissions in Queensland and the Northern Territory and net sequestration in all other jurisdictions. The Northern Territory and Western Australia are the only jurisdictions in which emissions levels in 2018 exceed those in 1990.

Emissions from the Agriculture, Waste and Industrial Process and Product Use (IPPU) sectors have been relatively stable since 1990 in all the jurisdictions, except the ACT.

Table 3. Australian jurisdiction committed and legislated emissions reduction targets.

Jurisdiction	Legislated	Government Commitment / Policy
Tasmania	60% below 1990 levels by 2050	NZE by 2050
New South Wales		Climate Change Policy Framework includes NZE by 2050; Net Zero Plan includes 30% by 2030
ACT	NZE by 2045 & interim targets for 2020, 2025, 2030 and 2040	
Queensland		NZE by 2050 and 30% by 2030
Victoria	NZE by 2050 & 5 yearly interim targets	
South Australia	60% below 1990 levels by 2050	NZE by 2050 and 50% by 2030
Western Australia		NZE by 2050
Northern Territory		NZE by 2050

### 4.2 Analysis of Tasmania's Emissions

Tasmania has a unique emissions profile within the Australian context, due to the extent of carbon sequestration (absorption of carbon dioxide from the atmosphere) by its native forests and forestry plantations and its almost complete reliance on renewable energy for electricity production.

Changes in forest policy in Tasmania have led to significant increases in carbon sequestration. The area of native forest harvested in Tasmania's has decreased, which has paved the way for regeneration and regrowth and has increased sequestration rates. This has resulted in the land use change forestry sector moving from being an emissions source to a major carbon sink, offsetting the emissions from other key sectors in Tasmania.

The Tasmanian Government has commissioned Point Advisory to undertake a review of the State's future emissions pathway. To accompany this Discussion Paper, Point Advisory have provided the '*Net zero emissions pathway options for Tasmania – Background paper*' in Section 7 of this Discussion Paper.

The paper provides an overview of the analysis undertaken for the Tasmanian Government to support the development of a new, more ambitious emissions reduction target for the state, and includes the following:

- A discussion of Tasmania's current emissions profile, and the business-as-usual trajectory for the state's emissions.
- An overview of emissions reduction opportunities available to Tasmania, with a description of their impact on Tasmania's emissions and its economy, as well as the costs and benefits of implementation.
- A discussion of the net zero target pathway options available to Tasmania, including a comparison with other Australian states and territories, and with other countries and several key questions related to target setting for Tasmania.

### **4.3 State Target**

The setting of quantitative emissions targets on a whole-of-economy basis helps governing bodies and their communities define their intent and path towards the target. Targets facilitate monitoring and reporting and help ensure accountability for actions or initiatives that are intended to drive progress towards them.

Critical factors that should be considered in determining suitable emissions targets include:

- **Ambition:** does the target accurately reflect the expectations of the jurisdiction's communities, business interests and other stakeholders? Does the target express the appropriate level of urgency required to address climate change impacts? Will the target drive action to reduce emissions?
- **Achievability:** can the target be achieved and sustained, based on the jurisdiction's economy, communities, infrastructure, and natural environment and emissions trajectory and abatement opportunities?
- **Cost and economic impact:** what are the direct and indirect upfront and long-term costs of targets at various levels of ambition? What are the economic impacts (positive and negative) that may be realised with the kinds of low carbon transition anticipated by the target? For example on communities, businesses and industry?
- **Aligned with science:** does the target appropriately reflect the best available scientific data on the need to reduce emissions?
- **Alignment with national and global developments:** does the target ensure Tasmania's response to climate change is consistent with its counterparts abroad?

Engagement with government, business and industry, and communities to understand stakeholder sentiment towards the settings of emissions targets has assisted in developing a view of important considerations to appropriately set Tasmania's next emissions target. A snapshot of some perspectives is provided below:

- A 2050 NZE target is too conservative and is not consistent with broader responses to climate change. Conservative setting of targets can result in climate inaction due to the lacking sense of urgency.
- It is not appropriate to primarily rely on carbon sequestration from the LULUCF sector in achieving emissions targets.
- Targets must be considered in a practical sense to ensure adverse impacts are not placed on the State's economy and communities.

## 4.4 Interim Targets

Interim targets, or periodic emissions budgeting (carbon budgets), are useful in providing nearer-term, more tangible goals and means for measuring progress against emissions reduction efforts. They also serve as a way conveying greater urgency for action on climate change mitigation and adaptation, driving government accountability and implementation of necessary policies and measures in order to meet an interim target or avoid exceeding an emissions budget range.

Jurisdictions such as the Victoria, New Zealand, Denmark, and the United Kingdom require carbon budgets to be for five-yearly periods, aligning with the timing of UNFCCC COP meetings and allowing consideration to developments in climate science, ensuring consistency with global developments in climate change.

## 4.5 Sectoral Targets

Several Australian jurisdictions' climate change legislation provides for sector-based targets for emission reductions, although these are not enshrined in legislation.

The South Australian Government may enter into voluntary sectoral agreements with specific business entities, community groups, non-government organisations (NGOs), local governments and regions. These agreements can relate to improving energy efficiency, reducing energy consumption, promoting the use of renewable energy, R&D and innovation, raising awareness and behavioural change programs, and climate adaptation opportunities from particular projects or programs, or to part or the whole of an organisation or region. A number of individual local governments, and various local government consortiums have entered into sector agreements with the South Australian state government. An example is the [Carbon Neutral Adelaide](#) initiative, Figure 9 shown provides highlights of this sector agreement.

Similarly, Victoria has established a pledging model where the state government will describe actions, policies, and programs that it is taking to reduce emissions through pledges regarding its own operations and five-yearly sector pledges across its key sectors. Voluntary pledges can also be made by local governments, businesses, community and educational organisations, individuals and families. So far, five councils have made pledges under this model.

The United Kingdom Government has climate change agreements (CCA), which thus far have included umbrella agreements for energy or carbon efficiency targets for various sectors and the participation of 53 business sectors in the CCA scheme. CCAs encourage energy use and emissions reductions through providing discounts to a tax on fossil fuel consumption, requiring operators to measure and report energy use and emissions against agreed targets every two years. A high proportion of operators under the CCA scheme have successfully met their targets and achieved emissions reductions, although it has been recognised that an "awareness effect" has driven further success through operators realising the potential of cost-effective energy efficiency improvements.

ACT climate change legislation has similar provisions, although no voluntary sectoral agreements have yet been made. In part, this reflects the lack of emissions-intensive industries, for which voluntary emissions reductions could significantly affect the jurisdiction's emissions profile.

Imposing emissions target on sectors can have significant impacts on the performance and health of sectors where emissions abatement opportunities are limited, require significant capital investment, or are reliant on emerging technology. Partnerships, collaboration and support from government can assist in addressing such concerns for sectors.

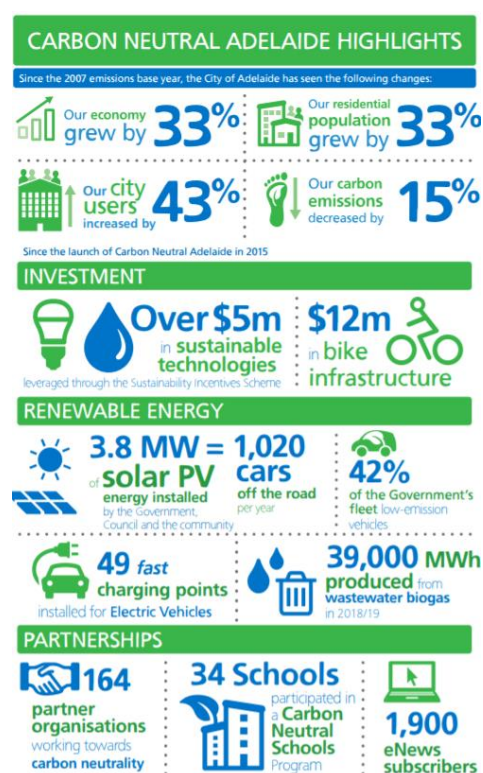


Figure 9. Carbon Neutral Adelaide highlights.

**Stakeholder feedback we have heard on Emissions Targets**

- A net zero emissions target by 2050 for the state of Tasmania is too conservative
- When setting targets, careful consideration is required towards economic impacts to businesses, and financial- and human-related costs
- Sector based targets ensure the state target isn't reliant on any particular sectors
- Sectoral targets should consider emissions abatement potential, opportunities, and complexity for each sector
- 5-yearly interim targets drive action and ensures accountability in pursuing emissions reductions

## 5. Lower Carbon Economy and Society

### 5.1 Tasmania's Economy and its Emissions

Tasmania is among the least polluted regions in the world, about half its land area is reserved for nature conservation and an even larger area retains native vegetation cover. Typically, 100% of Tasmania's electricity is generated from renewable sources and its per capita greenhouse gas emissions are lower than in every other Australian jurisdiction. The state produces a rich variety of high quality food, fibre and beverages, and boasts natural beauty in its forests, mountains, and coastal regions. This "clean and green" image has helped lead economic and population growth in Tasmania. Remote working opportunities due to the COVID-19 pandemic have added to this appeal and growth.

#### *Tasmania's economic growth and associated emissions*

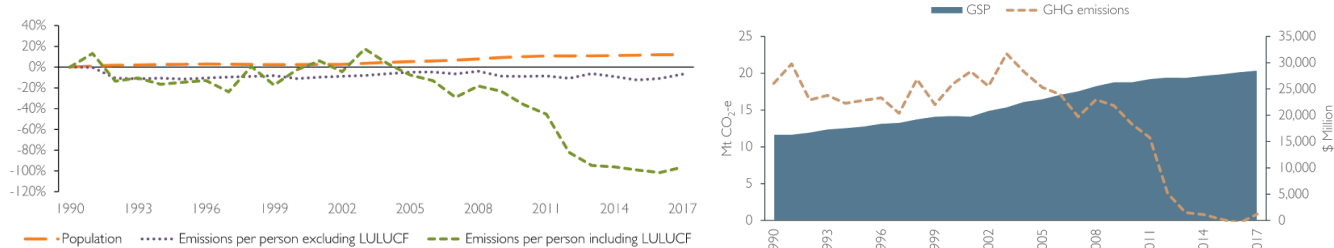


Figure 10. Percentage change from 1990 baseline in Tasmania's population and emissions per person – 1990 to 2017.

Figure 11. Change in Tasmanian emissions and real Gross State Product – 1990 to 2017.

Tasmanian Greenhouse Gas Emissions Report, 2019

Tasmania has seen steady economic growth over the past several years. With its renewable energy powered electricity grid and net carbon sequestration in the Land Use, Land Use Change and Forestry (LULUCF) sector, Tasmania has reduced the emissions intensity of its economy. Excluding the net carbon sequestration of LULUCF, there is a more gradual downward trend.

The Tasmanian Government's population growth policy could also alter the direction of the State's emissions. The State Government's Population Growth Strategy (2015) sets a target for 650,000 people in Tasmania by 2050. Recent ABS data published in June 2020 record Tasmania's population at approximately 540,000 persons, suggesting population growth is in-line with this target.

Through job creation and workforce development, migration and liveability, the State's population growth policy sets out an approach for a sustainable, balanced growth which will be leveraged for economic growth in the State. Without concerted efforts towards emissions abatement in population-related sectors (i.e. transport, stationary energy, and waste), it can be expected that the State's emissions will increase as a result of this population growth.

The Tasmanian Government has also introduced the ambitious goal to increase the annual value of its agricultural sector to \$10 billion by 2050. Being a relatively emissions-intensive sector, growth in agricultural production could lead to increased emissions. It is recognised that the agriculture sector is a complex sector in which to achieve emissions reductions. The National Farmers Federation (NFF) issued its own climate change policy in 2020, declaring support for a national economy-wide net-zero emissions target. The NFF acknowledges that the agriculture sector must play its part in reducing emissions, provided that viable decarbonisation pathways are identified and legislation is equitable and advantageous and does not provide unnecessary regulatory impediment. Some other agricultural organisations have set ambitious emissions reduction targets for their sector such as the Meat & Livestock Australia (carbon neutral by 2030).

## 5.2 Low Carbon Developments in Tasmania

### *Leveraging Renewable Power*

Tasmania's renewable energy generation infrastructure has been a key driver of its low emissions status and economic growth. The states recently released Renewable Energy Action Plan and 200% renewable energy target anticipate an increased contribution to the economy from renewable energy generation. The Government plans to drive investment renewable energy projects and double renewable energy production by 2040.

With the realisation of the Battery of the Nation initiative and Project Marinus and its pipeline of renewable energy projects, Tasmania is on track to begin exporting additional renewable energy to mainland Australia. The Renewable Energy Action Plan also addresses the production of "green" hydrogen and pursuing its export from 2030.

### *Promote energy efficiency and conservation*

Several initiatives have been undertaken in Tasmania to improve the energy efficiency of businesses and communities. In the time since the last review of the Act, the Tasmania Government:

- In partnership with Aurora Energy, and Westpac Bank delivered the Tasmanian Energy Efficiency Loan Scheme (TEELS) for homes and small businesses to access no-interest finance to purchase eligible energy efficient products.
- Commenced the Power\$mart Businesses program offering funding for energy efficiency audits for eligible businesses.
- Commenced the Power\$mart Homes program which has provided 146 low-income households with energy efficiency assessments and upgrades (now discontinued due to public health risk caused by COVID-19).
- Completed energy efficiency audits across nine aged care facilities.
- Development of an online interactive energy management and self-audit tool for farm operators.
- Delivered state-wide workshops for financial counsellors to better assist vulnerable clients in managing their energy use and power bills.



Figure 12. Power\$mart Homes logo.

### *Promoting early action by business and community*

The Act seeks to promote consultation and early action on climate change by business and community. In line with this objective, the Government has been involved in the promotion of:

- Low emissions transport including:
  - The establishment of the Electric Vehicle Working Group in 2017 which brings together key partners to develop a coordinated approach to support the uptake of EVs.
  - Raising community awareness of EVs through 'try and drive', demonstration, and expo events.
  - The ongoing rollout of the Electric Vehicle ChargeSmart Grants Program which has provided over \$600,000 in grant funding in support of the installation of 14 fast- and ultrafast charging stations at strategic locations across the State as well as 20 destination charging stations.

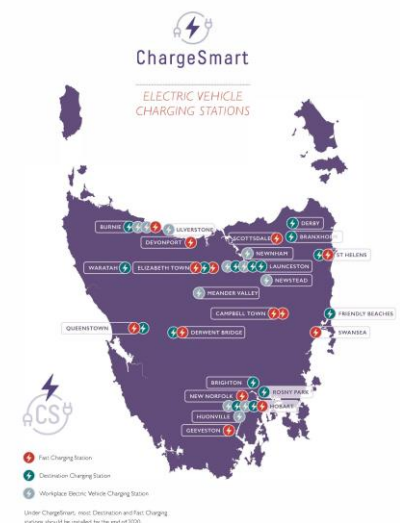


Figure 13. Charge Smart electric vehicle charging stations.

- Smarter Fleets Program which provides guidance on improvements in fleet fuel efficiency and the use of alternative technologies (eg. hydrogen and electric vehicles).
- Supporting uptake of public transport through the rollout of the Southern and Northern bus networks and planned North-West bus network, and development of two new Park and Ride facilities in Hobart.
- Resource efficiency through the completion of the Business Resource Efficiency Program in which 11 businesses across a range of sectors underwent waste audits and subsequent waste minimisation projects were identified for each business, with support provided in their implementation.
- Low emissions fertiliser practices via the Fert\$mart initiative, in partnership with DairyTas, where 200 Fert\$mart plans have been developed for approximately 50% of the State's dairy farms. Financial assistance was provided to support the installation of necessary infrastructure associated with the implementation of Fert\$mart plans which seek to reduce fertiliser-related emissions and costs.
- Provision of subsidised training and workforce development necessary for a skilled workforce required for the Battery of the Nation initiative and renewable energy sector.

#### *Promoting research and development*

The Act seeks to promote research and development in climate change mitigation and the following has been undertaken to further advance technologies or practices that reduce or limit GHG emissions in Tasmania:

- The Tasmanian Government has been involved in the promotion of Tasmania's renewable energy advantages, and support of for a number of renewable energy projects.
- Release of a Renewable Hydrogen Action Plan to activate industry development and advance the production of renewable hydrogen in Tasmania.
- The Enterprise Suitability Mapping project allows Tasmanian farmers to access soil and climate data to inform more robust decision making on different types of crops and produce. As a result, farm management practices can lead to increased soil health and soil carbon storage due to a greater understanding of soil characteristics.

### **5.3 Transitioning to a Low Carbon Economy**

Since the Paris Agreement, a global transition to a low-emissions future has been building momentum, and with the recent surge in climate action and ambition in major world economies, it can be expected that this transition will begin to accelerate. The Australian Government's Climate Change Authority noted in its 2020 Climate Policy Toolkit for 'Prospering in a low-emissions world' that Australia will need to respond to changing global circumstances, or risk getting left behind; identifying that the upcoming long-term national emissions reduction strategy should:

- Consider trade and investment strategies that utilise Australia's competitive advantages in a low-emissions world.
- Support a global response to climate change through growing international demand for emerging Australian low-emissions export industries.
- Ensure Australian low-carbon industries, products and services are able to benefit from increased international green investment flows.
- Support regions and communities position for new low emissions technologies and economic opportunities.

As national and international climate action progresses towards lower carbon economies and communities, Australian States and Territories will need to ensure that their communities, businesses and industries are carbon

conscious and in a position to benefit from this transition. Tasmania is well-placed to do so, with its carbon sinks and renewably powered electricity grid laying the foundation for a low carbon economy.

Changing investor and consumer sentiments will place pressures on industry sectors as demand for low emissions products and services grows. As such, transitioning at a pace consistent with the context of climate action nationally and internationally, minimises the risks stranded assets can present to an economy and its communities.

A low carbon transition will need to be carefully executed, considering the impact on communities and businesses that are dependent on emissions-intensive resources and operations. Careful consideration and appropriate planning and policy can allow for a just transition for impacted industries and dependent communities. A low carbon emissions future also reduces the risk of increased occurrence of natural hazards and climate-related disasters, helping to safeguard communities and livelihoods from the shocks and stresses climate change can present.

An economy-wide transition to a lower carbon Tasmania can have many co-benefits, including:

- Less polluted air which decreases rates of illness and death through reducing fossil fuel consumption, and cleaner waterways through more efficient rates of fertiliser application and precision agriculture. This is reflective of, and enhances, Tasmania's "clean and green" brand.
- New research and learning, and the adoption of low emissions technologies can result in innovation and the emergence of alternative technologies that can open up new markets and access previously untouched markets for Tasmanian businesses and industries.
- Paving the way for realisation of new and additional investment opportunities in Tasmania. For example, the production of bioenergy and renewable hydrogen for use in the manufacturing and transportation sectors, or the development of zero carbon products that can be exported.
- Positively contributing to and influencing national and international responses to climate change.



## 5.4 Stakeholder Feedback and Sector Considerations for a Lower Carbon Economy

Stakeholder feedback has been collected as part of this review to further understand the transitional risks and opportunities for key economic sectors in Tasmania becoming a lower carbon economy.

Table 4. Sectoral feedback on the transition to a low carbon economy.

Agriculture	Transport	Stationary Energy	Industrial Processes and Product Use	Land Use Change Forestry
<ul style="list-style-type: none"> <li>A complex sector for emissions abatement, with large numbers of relatively small business operators. Any emissions reduction pursuits must consider impacts on farm profitability.</li> <li>Further research and investment is required to develop viable low emissions solutions.</li> <li>The significant planned growth for the sector can have implications on the natural environment as well as farm business and health.</li> <li>Climate action carried out through collaboration and partnerships, and driving awareness and education, is critical for the sector to make progress against climate change.</li> <li>Potential emissions reduction opportunities include; seaweed to mitigate enteric fermentation, transitioning away from fossil fuel consumption, regenerative agriculture, and agroforestry and income diversification of crops and produce.</li> </ul>	<ul style="list-style-type: none"> <li>Policy reform to remove barriers, and introduce incentives to aid the transition to a low emissions transport network. Consideration to vulnerable communities is critical to ensure access is available to low carbon transport options.</li> <li>Transition away from fossil fuel consumption in the transport network through electrification and uptake of low emissions fuels such as hydrogen and renewable biodiesel.</li> <li>Increase uptake of EVs and public and home charging infrastructure through removal of cost barriers and business and community awareness raising.</li> <li>Increase the uptake of public and active transport, with alignment between land use and public transport planning.</li> </ul>	<ul style="list-style-type: none"> <li>Development of a strategy for the transition away from fossil fuel uses towards alternative fuels and energy sources such as bio-energy and hydrogen.</li> <li>Consider electrification as a substitute for fossil fuel energy use, with planning accounting for impact on demand from the electricity grid.</li> <li>Energy efficiency in the built environment.</li> </ul>	<ul style="list-style-type: none"> <li>Market and consumer pressure for low emissions products and services.</li> <li>Electrification and the transition away from fossil fuel consumption.</li> <li>Improving energy efficiency across industrial operations and processes (e.g. demand reduction measures).</li> </ul>	<ul style="list-style-type: none"> <li>The net carbon sequestration from native forests and plantations is likely to plateau and decrease over time.</li> <li>A major bushfire risk could significantly affects stocks of carbon stored in forests and plantations.</li> <li>There is large potential for the production of bio-energy from forest waste and residues.</li> </ul>

## 6. Climate Resilience

### 6.1 Tasmania's Climate and Projected Impacts

With climate change, Tasmania's future climate is projected to be characterised by increased temperatures, changes to annual rainfall patterns and an increase in the frequency of extreme weather events. Increasing temperatures (and decreased humidity inland) are likely to lead to increases in evaporation and, with reduced rainfall in north-west and central Tasmania, may lead to changes in water resource availability.

Tasmania's average temperature rise is slightly moderated relative to many other areas of Australia due to the influence of surrounding oceans. However, the surrounding oceans will continue to warm and acidify and sea levels are projected to continue to rise. IPCC upper range sea level rise projections for 2100 now exceed 1 metre and some peer-reviewed science suggests that sea levels will rise much faster than this. Erodible coasts are expected to retreat in response to changing sea levels.

Projected climate change to 2030 is effectively locked in by greenhouse gases already in the atmosphere and the carbon intensity of existing industrial and transportation systems. The opportunity exists to contain the change in global mean temperature to less than 2°C, but only through aggressive global reductions in greenhouse gas emissions, in line with the Paris Agreement. However, even if the drive to abate the growth in greenhouse gas emissions is successful, significant action will still be required to adapt to the direct and indirect impacts of even a 2°C increase in temperature.

#### *Natural hazards and climatic events*

Tasmania's ability to anticipate and adapt to climate extremes and future climate change is underpinned by the level of climate resilience in the community. Climate resilience is a journey involving analysis of climate change projections and impacts and the prioritisation and implementation of measures to better cope with climate risks.

Tasmania has experienced significant bushfire events in 2016 and 2018-19 and the worst state-wide flooding in 40 years. Tasmania was indirectly impacted by the Black Summer event from bushfire smoke and emergency services being sent to support the national effort on the mainland.

Climate Futures for Tasmania projects that in addition to changes in average rainfall and temperature, there will be changes in the frequency and intensity of extreme climate events such as bushfires, heatwaves and flooding, and these events have already begun manifesting.

#### *Community impacts*

Projected climate change may also affect the physical and mental health of Tasmanians. Such impacts are likely to result from the direct impacts of extreme climate events such as drought, bushfires, heatwaves and flooding and, for some affected people and communities, the on-going trauma associated those events.

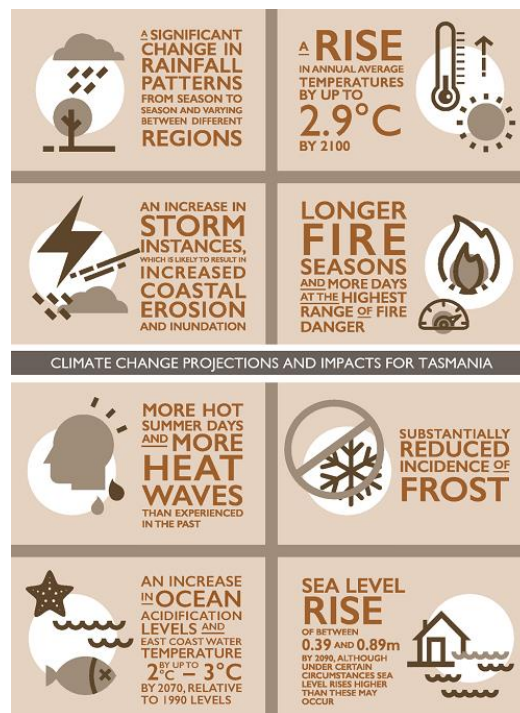


Figure 14. Projected climate changes by 2100 from Climate Futures for Tasmania.



Figure 15. Tasmanian bushfires.

Climate conditions associated with bushfire or other events can cause or contribute to a variety of acute and chronic health issues. Acute conditions range from irritated eyes to severe heat or respiratory distress. These are linked to increased deaths in the elderly population. Vulnerable population groups (e.g. children, elderly, socially disadvantaged) may also have a higher risk of negative physical and mental health outcomes during and following natural disasters according to the [Royal Commission into National Natural Disaster Arrangements Report](#).<sup>20</sup>

Stakeholder and community discussions during the review's consultations flagged overarching concerns for health impacts from climate change. Comments noted:

- The health co-benefits of climate action such as cleaner air and waterways, and increased connection to the natural environment.
- A lack of strategies or action planning for the healthcare sector to address the growing pressures climate change will place upon it.
- Addressing the emergence and rapidly growing issue of climate anxiety and distress being experienced within the community, but more prevalent in younger demographics.

## 6.2 Measures to help Tasmania deal with and adapt to climate change

### *Development of climate-related data and information*

To develop appropriate and adequate adaptation responses to the physical impacts presented by climate change now and into the future, a sufficient amount of scientific data and information is required to accurately understand and predict these impacts. Having such data and information available informs more targeted and effective adaptation strategies and initiatives to be implemented.

There are three main sources of scientific information used by the Tasmanian Government to understand climate change impacts and risks. [Climate Futures for Tasmania](#) results from Tasmanian Government investment and is an important source of climate change projections and data for the state. Downscaled modelling for Climate Futures for Tasmania suggests that temperatures will continue to rise, but at a slower rate than mainland Australia, total annual rainfall will reduce and there have been shifts in climate drivers. [LISTmap](#) (Land Information System Tasmania) provides map overlays of climate change, natural hazards, biodiversity, primary industries and geology projections on an interactive map, for three time periods and for differing carbon emission scenarios.

With the aim of improving community resilience, RiskReady allows Tasmanian businesses and communities the ability to understand the level of risk that various natural hazards present to specific locations, such as their properties. Utilising data available from the LISTmap, the [RiskReady platform](#) displays up-to-date climate hazard information in an accessible and understandable format, while providing advice to users on how to mitigate impending risks.

Also utilising the function of the LISTmap, Enterprise Suitability Mapping has been updated to incorporate climate change projects to better help farmers understand climate-related risks of various crop and produce types based on soil and climate information.

The Tasmanian Government has also supported research to further develop climate scientific knowledge and understanding of climatic and extreme weather events through the Climate Research Grants Program and Compound Extreme Events research project.

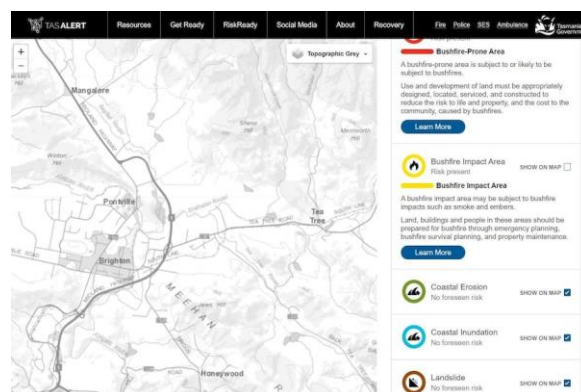


Figure 16. RiskReady platform.

<sup>20</sup> Royal Commission into National Natural Disaster Arrangements. (2020, October 28). Royal Commission into National Natural Disaster Arrangements Report. Commonwealth of Australia. Retrieved from [naturaldisaster.royalcommission.gov.au](https://naturaldisaster.royalcommission.gov.au/system/files/2020-11/Royal%20Commission%20into%20National%20Natural%20Disaster%20Arrangements%20-%20Report%20%20%205Baccessible%5D.pdf):  
<https://naturaldisaster.royalcommission.gov.au/system/files/2020-11/Royal%20Commission%20into%20National%20Natural%20Disaster%20Arrangements%20-%20Report%20%20%205Baccessible%5D.pdf>

Climate-related data and information has helped to underpin various programs and initiatives that facilitate and contribute to climate adaptation and building climate resilience in Tasmanian communities, businesses and natural environments. State and local government, industry, and communities have been involved in such programs and initiatives as:

- The Tasmanian Climate Symposiums for networking, sharing of learnings and further development of climate change responses.
- The Climate Change and Health Roundtable held in 2019 to help identify opportunities to build resilience against health risks caused by climate change.
- Climate Resilient Councils project which sought to better understand climate-related risks relevant to Tasmanian local governments. Climate change governance was analysed of participating Councils and subsequent reports of the analysis and recommendations provided.
- Coastal Hazards Management for Existing Settlements and Values Project whereby information gathering workshops were conducted to inform approaches to managing coastal hazards.
- Disaster Planning and Recovery for Tasmanian Businesses project supported 48 businesses to undertake continuity planning to prepare for and respond to extreme climatic events.
- Skills Tasmania and Energising Tasmania Training Fund has provided subsidised training to prepare Tasmania's workforce for the impacts of climate change on industries.
- Community Flood Planning Pilot has provided households in certain locations to better assist the community, prepare and plan for floods.

### **6.3 Stakeholder Feedback and Opportunities in building resilience in Tasmania**

As with the transition to a low carbon economy in order to reduce emissions, opportunities are numerous and hold numerous co-benefits when addressing climate change and adapting to its expected consequences.

There are many presently available opportunities within Tasmania that will improve the state's climate resilience. Thus far, stakeholder engagement undertaken for this review has heard from representatives across scientific organisations, key economic sectors, business and industry, and the community, with the following potential opportunities identified:

- Partnering with local governments and empowering the community.
- Planning for bushfires and mitigating their impacts, developing effective bushfire response methods.
- Climate adaptation and resilience to be approached in collaboration with Tasmanian Aboriginal people.
- Proactive planning for existing and projected climate change impacts minimises economic impacts caused by a changing climate.
- Alignment of the various levels of government for consistency in climate adaptation approaches to build resilience and adaptive capacity across all communities.
- Clearly define roles and responsibilities in emergency management through climate change legislation to prepare for expected impacts of climate change.
- Establishment of an adaptation committee to focus on adaptation and resilience outcomes.
- Collaborative partnerships between various levels of government and communities to identify and implement priorities to improve adaptive capacity and strengthen climate resilience in vulnerable communities.

## **7. Net zero emissions pathway options for Tasmania – Background paper**



**Point.  
Advisory**

with



**Indufor** ...forest intelligence

# Net zero emissions pathway options for Tasmania

**Background paper**

Prepared for:  
**Tasmanian Department of Premier and Cabinet**  
**19 March 2021**

## THIS PAPER

The purpose of this paper is to provide background information and preliminary analysis on Tasmania's emission profile, pathways and opportunities to set a more ambitious net zero emissions target.

This paper provides an overview of the analysis undertaken to date for the Tasmanian Government to support the development of a new, more ambitious emissions reduction target for the state, and includes the following:

- a discussion of the net zero target pathway options available to Tasmania, including a comparison with other Australian states and territories, and with other countries;
- a discussion of Tasmania's current emissions profile, and an indication of how this profile could look in the future; and
- an overview of different emissions reduction opportunities available to Tasmania, their impact on Tasmania's emissions to 2050, how these may impact the economy and the overall costs and benefits of implementation.

The insights provided in this paper reflect:

- preliminary analysis of Tasmania's current emissions profile using 2018 State and Territory Greenhouse Gas Inventory (STGGI) data published by the Australian Government;
- the findings of emissions pathway modelling undertaken by Point Advisory and Indufor in 2019 using 2016 STGGI data (the most current emissions data available for Tasmania at that time); and
- consideration of new government policies and technological advances contributing to emissions reductions.

# NET ZERO EMISSIONS PATHWAY OPTIONS FOR TASMANIA

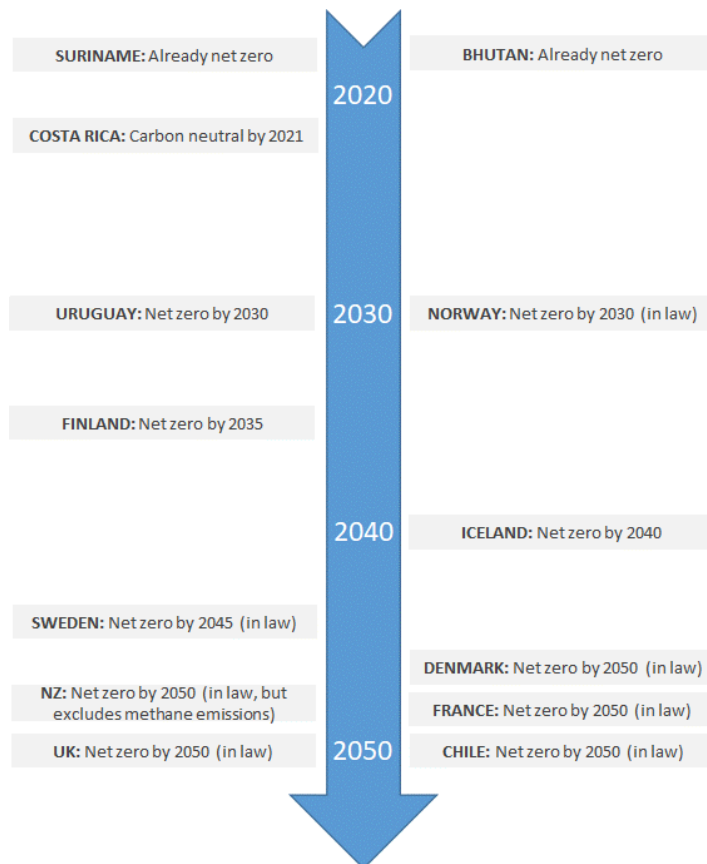
There is now overwhelming evidence that our climate is changing as a result of human-induced emissions of greenhouse gases. The resulting rising temperatures will have a significant impact on rainfall, evaporation and sea level, among many other things. These changes are likely to make our climate more varied and result in more frequent and severe extreme weather events.

To address this situation, in 2015, countries from around the world signed up to the Paris Agreement. This commits countries to keeping global temperature rise to well below 2 degrees Celsius, and to make every effort to keep them below 1.5 degrees Celsius, compared to pre-industrial levels. In practical terms, this means that greenhouse gas emissions need to peak now and reach net zero by 2050 at the latest. The Paris Agreement recognises the important role of sub-national governments in responding to climate change, however meeting this challenge is a shared responsibility that will require action from communities, businesses and governments from around the world.

Under the existing *Climate Change (State Action) Act 2008* (the Act), Tasmania passed a legally binding target to reduce emissions by at least 60% below 1990 levels by 2050. Through the release of Climate Action 21, the Tasmanian Government has committed to a target of net zero emissions by 2050. As part of the independent review of the Act that is currently underway, the Tasmanian Government is seeking to set a more ambitious emissions reduction target for Tasmania, aligned with the goals of the Paris Agreement.

At the domestic level, all states and territories in Australia now have some form of net zero commitment by 2050. Most notably, Victoria has a legislated target to achieve net zero emissions by 2050, and the ACT has a net zero target by 2045. At the international level, a number of countries have set net zero emissions targets by 2050 (or earlier), including many that are enshrined in law.

**Figure 1. Timeline of announced international net zero emissions targets<sup>1</sup>**



Note that New Zealand’s overall net zero emissions target for 2050 excludes methane emissions from agriculture and waste. Methane emissions from these two sectors represent over 40% of New Zealand’s current emissions.

<sup>1</sup> Source: Based on Energy & Climate Intelligence Unit’s Net zero tracker: <https://eciu.net/analysis/briefings/net-zero/net-zero-the-scorecard>



They are covered by a separate target of at least 24-47% reduction below 2017 levels by 2050, with an interim target of 10% reduction by 2030.

With its significant forest estate and low carbon electricity sector, Tasmania is well placed amongst Australian states and territories to achieve net zero emissions at a relatively low cost. Our analysis indicates that Tasmania could achieve and maintain net zero emissions much earlier than 2050, whilst continuing to grow the economy.

Tasmania has the opportunity to position itself as a climate change leader, at both the national and global level, by setting a target to achieve and maintain net zero emissions earlier than 2050. Four target timeframes have been suggested in Table , and outline the relative benefits and risks of each option. Importantly, the ability to achieve these targets is largely influenced by the LULUCF sector maintaining removals at levels broadly aligned with those seen over the past five years. It is expected that this trend will continue into the future under most-likely conditions.

**Table 1. Potential emissions reduction target setting options – benefits and risks**

Target option	Benefits	Risks
<b>Net zero by 2035</b>	<ul style="list-style-type: none"> <li>• Would be the most ambitious state-level net zero emissions target in Australia.</li> <li>• Highly ambitious at the global level, outside of countries that have extensive forest resources and low emissions electricity sectors.</li> <li>• Aligned with climate science, and therefore robust and defensible.</li> <li>• First mover advantage.</li> </ul>	<ul style="list-style-type: none"> <li>• Could be seen as too difficult / costly to achieve, which may make stakeholders hesitant to commit.</li> <li>• Likely to require significant investment and research and development to support businesses to transition.</li> </ul>
<b>Net zero by 2040</b>	<ul style="list-style-type: none"> <li>• Would be the most ambitious state-level net zero emissions target in Australia.</li> <li>• Ambitious at the global level.</li> <li>• Aligned with climate science, and therefore robust and defensible.</li> <li>• First mover advantage.</li> </ul>	<ul style="list-style-type: none"> <li>• Could be seen as not being ambitious enough given Tasmania’s unique position of already having achieved net zero emissions since 2015, and its significant advantages compared with other states.</li> <li>• There is the risk that if Tasmania waits too long to set a net zero emissions targets, the state may miss the opportunity to catalyse innovative research and development and practices, and the associated additional economic activity arising from being a global leader in new technologies and systems.</li> </ul>
<b>Net zero by 2045</b>	<ul style="list-style-type: none"> <li>• Would be aligned with ACT’s net zero emissions target so still very ambitious at the national level.</li> <li>• Ambitious at the global level.</li> <li>• Aligned with climate science, and therefore robust and defensible.</li> </ul>	<ul style="list-style-type: none"> <li>• As for 2040 target.</li> </ul>
<b>Net zero by 2050 (current emissions reduction target policy position)</b>	<ul style="list-style-type: none"> <li>• Aligned with climate science, and therefore robust and defensible.</li> </ul>	<ul style="list-style-type: none"> <li>• As for 2040 target.</li> </ul>

# TASMANIA'S EMISSIONS PROFILE

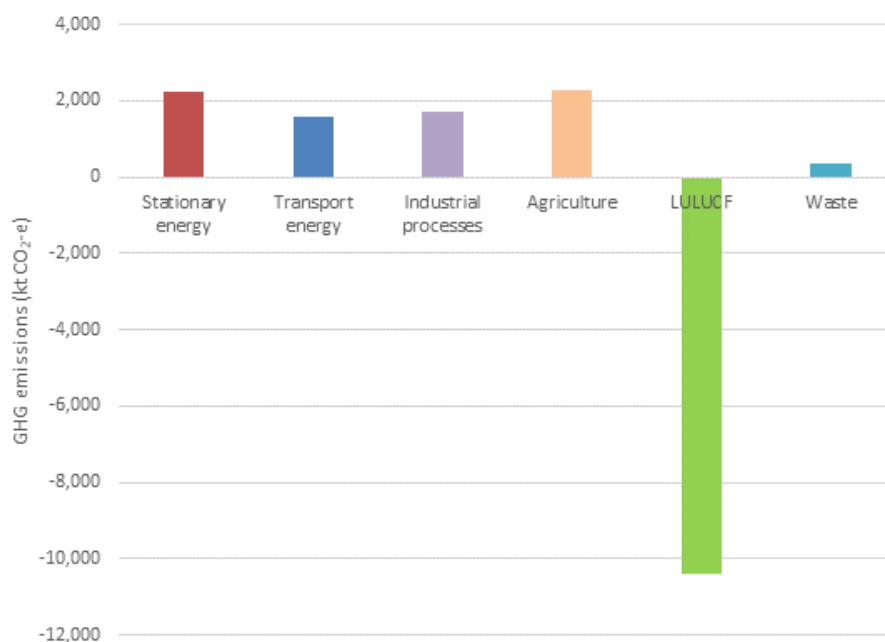
## Tasmania's greenhouse gas emissions today

Tasmania's emissions profile is unique among Australian states and territories, as it has maintained net zero emissions since 2015. This achievement has helped to establish Tasmania as an Australian climate change leader.

The achievement of net zero emissions is primarily because of Tasmania's large forest estate (which absorbs a significant amount of carbon dioxide from the atmosphere each year), and because the state generates a high proportion of zero emissions renewable electricity.

Since 2015, total emissions from the energy, industry, agriculture and waste sectors were less than the amount of carbon dioxide absorbed by the land-use, land-use change and forestry (LULUCF) sector. Figure shows the contribution of each these sectors to the state emissions profile in 2018 (the most recent published data).

**Figure 2. Tasmania's greenhouse gas profile by sector in 2018**



## Tasmania's "business as usual" emissions

Despite its current net zero emissions profile, Tasmania's emissions out to 2050 are not fixed under most-likely conditions, unless it takes further action to reduce emissions. There are three key drivers that will influence business-as-usual (BAU) emissions to 2050:

- **Policy drivers** including national and state policies that are in force or are expected to come into force in the coming decades. For example, under the Tasmanian Government's AgriVision 2050 plan<sup>2</sup>, the scale of production from the agriculture sector is expected to increase significantly between now and 2050, which may increase emissions. Conversely, the achievement of the objectives of the Tasmanian Renewable Hydrogen Action Plan<sup>3</sup> will likely provide opportunities for emissions reductions across the stationary energy and transport sectors.
- **Economic drivers** including changes in demand for commodities. For example, increases in demand for meat and dairy products may drive up emissions from agriculture. Conversely, Sustainable Timber Tasmania projections for yield harvesting in public native forests show that timber harvesting will stay at a similar level for the next 6-7 years, then drop back progressively through to 2050.

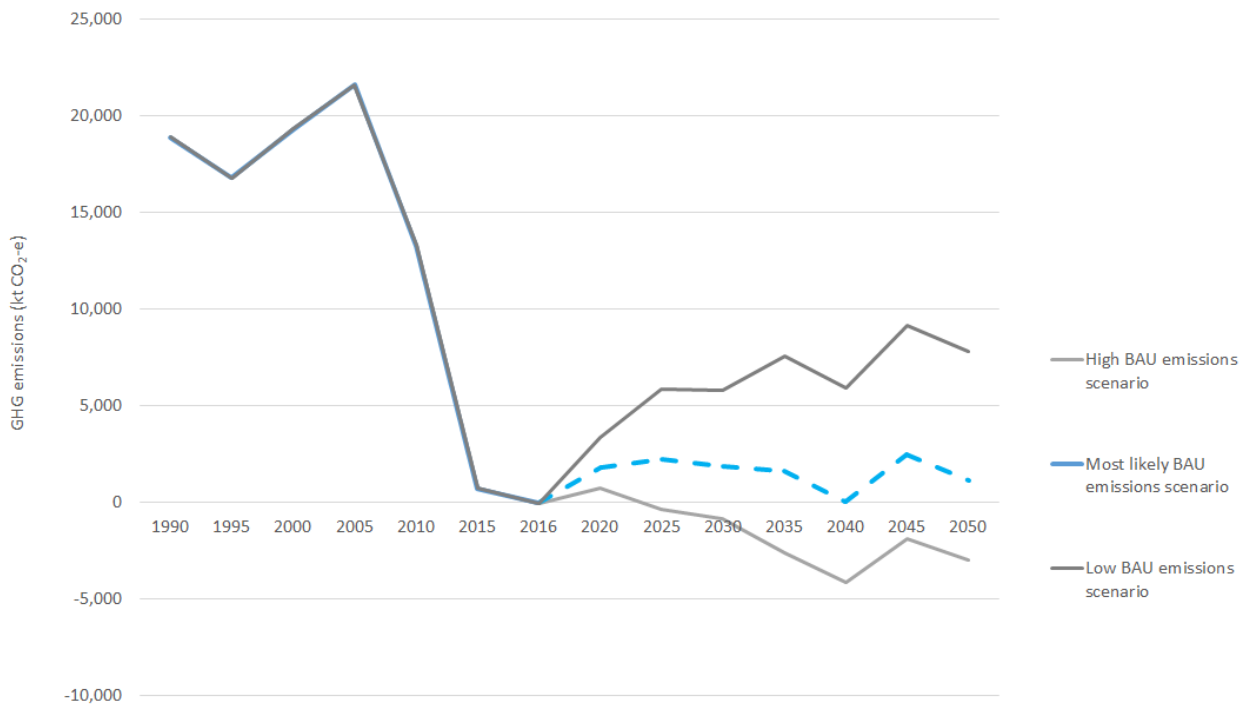
<sup>2</sup> <https://dpiwwe.tas.gov.au/agriculture/growing-tasmanian-agriculture-research-development-and-extension-for-2050>

<sup>3</sup> [https://www.stategrowth.tas.gov.au/news/archived\\_news/the\\_tasmanian\\_renewable\\_hydrogen\\_action\\_plan](https://www.stategrowth.tas.gov.au/news/archived_news/the_tasmanian_renewable_hydrogen_action_plan)

- **Technology drivers** including predicted technological progress in energy efficiency and electrification of stationary energy and transport, and in low-emissions agricultural practices.

Modelling undertaken in 2019 using the 2016 STGGI data (the most current emissions data available for Tasmania at that time) suggests that under BAU conditions, Tasmania’s annual emissions in 2050 could be anywhere between a net source of 6,000-7,500 kt CO<sub>2</sub>-e, and a net sink of 3,500-5,000 kt CO<sub>2</sub>-e (Figure ). Within this range, there is a plausible scenario that emissions remain above net zero between now and 2050. This demonstrates the need for Tasmania to identify additional emissions reduction opportunities to achieve and maintain net zero emissions into the future.

**Figure 3 Tasmania’s business as usual net emissions forecast to 2050 with uncertainty bands<sup>4</sup>**



**Source:** Previous modelling undertaken by Point Advisory and Indufor, 30 January 2019 (to be updated by mid-2021). Please note: this modelling uses emissions data from 2016 STGGI, which was the most current emissions data available for Tasmania at that time.

<sup>4</sup> There is a clear risk of major bushfires in Tasmania over the next 30 years, and further climatic changes make it likely that these will occur at a higher frequency and with greater severity than in the past. To account for this risk, the business as usual scenarios include major bushfire events, modelled to occur every ten years in in 2025, 2035 and 2045 (see Figure 2).

## OPPORTUNITIES TO REDUCE EMISSIONS

Table presents a set of “best-fit” emissions reduction opportunities for Tasmania to adopt in coming years. These opportunities were selected in collaboration with a range of Tasmanian Government agencies based on how achievable they are likely to be in the current policy context. While some of these opportunities align with existing government policy priorities, other opportunities - if pursued - would require further analysis in consultation with key industry sectors as they are likely to involve significant capital investment, research and development and undergo cost benefit analysis. Opportunities that involved new technologies that are still in development or costly were not included.

**Table 2. Potential ‘Best-fit’ emissions reduction opportunities for Tasmania**

Emissions sector	Opportunity	Relative size of expected emissions reductions in 2050*	Timeframe for implementation	Co-benefits
LULUCF	Reduce conversion of plantations to other land uses following plantation harvesting	Small	Next five years	<ul style="list-style-type: none"> <li>Ongoing revenue from increased sales of hardwood and softwood plantation logs.</li> <li>Diversification of revenue streams for private landowners from carbon credits.</li> <li>Revenue from increased sales of domestic wood products.</li> </ul>
	Increased plantations including agroforestry	Small	Next five years	<ul style="list-style-type: none"> <li>Ongoing revenue from increased sales of hardwood and softwood plantation logs.</li> <li>Revenue from increased sales of domestic wood products.</li> <li>Improved crop yields and higher animal productivity from tree planting in shelterbelts.</li> </ul>
	Increased proportion of forestry logs go to long term wood products, and increased domestic processing	Small	Next five years	<ul style="list-style-type: none"> <li>Increased revenue from additional domestic processing of long-term wood products.</li> <li>Job creation in the domestic timber processing sector.</li> </ul>
	Introduce measures to reduce the risk of major bushfires	Medium <sup>5</sup>	5-10 years	<ul style="list-style-type: none"> <li>More jobs in the fire management workforce.</li> <li>Reduced impact of bushfires on communities, wildlife and other forest values.</li> </ul>
Stationary energy	Reduction of diesel consumption in the agriculture, forestry and fisheries sectors	Small	Next five years	<ul style="list-style-type: none"> <li>Productivity gains could add additional value to Tasmania’s GSP.</li> <li>Brand advantage.</li> </ul>
	Demand reduction and energy efficiency measures for manufacturing	Medium	Next five years	<ul style="list-style-type: none"> <li>Operational energy cost savings for manufacturers.</li> <li>Revenue stream for manufacturers from carbon credits.</li> </ul>
	Fuel switching: electrification of boilers for manufacturing	Medium	5-10 years	<ul style="list-style-type: none"> <li>Increased revenues for electricity generators and retailers from increased electricity consumption.</li> <li>Revenue stream for manufacturers from carbon credits.</li> </ul>
	Fuel switching: Use of bioenergy / renewable	Large	>10 years	<ul style="list-style-type: none"> <li>Forestry industry sees potential for increased revenue from increased demand for biomass residues.</li> </ul>

<sup>5</sup> Note the emissions reduction potential of this opportunity is variable due to the uncertain nature of bushfires.

Emissions sector	Opportunity	Relative size of expected emissions reductions in 2050*	Timeframe for implementation	Co-benefits
	hydrogen for manufacturing			<ul style="list-style-type: none"> <li>Manufacturing industry sees reduced costs of energy switching from natural gas to hydrogen and/or biomass.</li> <li>Revenue stream for manufacturers from carbon credits.</li> </ul>
Transport energy	Increase low emissions vehicle uptake in passenger fleet, including EVs	Large	Next five years	<ul style="list-style-type: none"> <li>Long term cost savings for vehicle owners.</li> <li>Health improvements through reduced air pollution.</li> <li>Electricity generators and retailers grow revenue from additional electricity consumption.</li> <li>Energy security.</li> </ul>
	Decarbonise the heavy transport fleet via EVs, hydrogen, drop-in hydrocarbon fuels	Medium	5-10 years	<ul style="list-style-type: none"> <li>Long term fuel cost savings for vehicle owners.</li> <li>Health improvements through reduced air pollution.</li> <li>Electricity generators and retailers grow revenue from additional electricity consumption from electric vehicles.</li> </ul>
	Increased uptake of public and active transport	Small	Next five years	<ul style="list-style-type: none"> <li>Possible cost savings for car owners who decide to take active transport compared with private transport.</li> <li>Health improvements through promotion of a healthier lifestyle and less air pollution.</li> </ul>
Industry	Use Cement substitutes / Low-emissions cement variants	Large	10-20 years	<ul style="list-style-type: none"> <li>Operational savings for cement producers via reductions in energy consumption.</li> </ul>
Agriculture	Reducing agricultural soil emissions through precision agriculture	Small	Next five years	<ul style="list-style-type: none"> <li>Livestock and crop productivity gains could deliver significant additional revenue for farmers.</li> <li>Operational cost savings on things like fertilizer for farmers.</li> <li>Water savings.</li> </ul>
Waste	Cut methane emissions from landfills by diverting more organic waste from landfills	Medium	Next five years	<ul style="list-style-type: none"> <li>Landfill operators realise energy savings from capturing and combusting additional landfill gas.</li> <li>Landfill operators generate revenue through carbon credits.</li> <li>Creates additional potential revenue streams, e.g. through compost sales.</li> </ul>

\*The size of emissions reductions is calculated based on the relative magnitude of expected emissions reductions compared across these opportunities.

<b>small</b>	<125 kt CO <sub>2</sub> -e per year
<b>medium</b>	125-250 kt CO <sub>2</sub> -e per year
<b>large</b>	250-450 kt CO <sub>2</sub> -e per year

## ECONOMIC ANALYSIS OF THE NET ZERO EMISSIONS PATHWAY

Point Advisory analysed, at a high level, the impact of the best-fit pathway on the different sectors of Tasmania's economy (as defined by the Australian and New Zealand Standard Industrial Classification (ANZSIC) economic divisions).

Our analysis showed that the transition to a net zero carbon economy could deliver economic benefits across most sectors, including agriculture, forestry and aquaculture, and manufacturing.

In addition to economic benefits, broader economic co-benefits associated with a transition to net zero emissions include:

- Improvements in energy efficiency and productivity leading to reduced costs for energy users and a relative "insulation" from fluctuations in commodity prices.
- An earlier transition to a low carbon economy minimises the risk of stranded assets - particularly for Tasmania's manufacturing sector as international demand for low-emission products and services increases.
- The positioning of Tasmania as a key player in the renewable hydrogen space through the Tasmanian Renewable Hydrogen Action Plan helps ensure that Tasmania is well placed to benefit from the emerging global hydrogen industry. This could create opportunities including fuelling the heavy vehicle fleet in Tasmania with hydrogen and enabling commercial exportation of renewable hydrogen by 2030.
- The creation of additional investment opportunities for Tasmania. For example, the relocation of Australia's data centres to Tasmania due to its affordable low-carbon electricity and milder climate requiring less cooling.

Furthermore, by achieving a successful transition to a low-emissions economy, Tasmania can have a positive influence on other Australian states and other countries in pursuing a low-emissions economy, by demonstrating leadership.

## Appendix A. Terms of Reference for the Independent Review

Pursuant to subsection 18(2) of the Act, the review will address:

1. the extent to which the objects of the Act are being achieved;
2. the extent to which additional legislative measures, if any, are considered necessary to achieve the targets set by the Act within the periods contemplated by the Act, including the introduction of performance standards or other mandatory requirements; and
3. such other matters as the Minister may consider relevant to the review of the Act.

Pursuant to subsection 18(2)(c) of the Act, other relevant matters to be addressed by the review include to:

1. examine whether the Act provides a sound foundation for action (by the Tasmanian Government, business and community) on both climate change mitigation and adaptation;
2. examine whether the Act provides a sound framework for consideration of climate-related risks and opportunities relevant to the Tasmanian Government, businesses and community;
3. consult on the options to revise Tasmania's emissions reduction target based on the outcomes of Tasmania's Emissions Pathway Review. As outlined in the Objects of the Act (section 4 of the Act) this is to include consideration of interim targets and sectoral targets;
4. take into account the international, national and State climate change policy context (as outlined in the Context) including:
  - recent climate change developments:
    - climate-related financial and liability risks to government;
    - Tasmania's latest greenhouse gas figures (the 2018 Australian Government's STGGI);
    - the global transition to a low carbon economy; and
    - the impact of COVID-19 on climate change action in Tasmania.
  - key Australian Government strategies including:
    - Australian Government National Strategy for Electric Vehicles;
    - Australia's Australian Government's National Strategy for Electric Vehicles; and
    - National Hydrogen Strategy;
  - key Tasmanian Government strategies including:
    - Tasmanian Renewable Energy Action Plan and Tasmanian Renewable Energy Target;
    - Tasmania's Population Growth Strategy;
    - Tasmanian Infrastructure Project Pipeline; and
    - Agrivision 2050 and White Paper: Growing Tasmanian Agriculture Research, Development and Extension for 2050.
  - the 2016 review of the Act; and
  - the Tasmanian Government's Climate Action 21 and development of the next action plan post-2021.

Subsection 18(3) of the Act stipulates that reasonable steps should be taken to carry out the review of the Act in consultation with relevant business, scientific, environment and community bodies. It is expected that, as part of the review of the Act, reasonable time and processes are built in to ensure broad input.

## **Appendix B. Objects of the Climate Change (State Action) Act 2008**

- a) to help Tasmania respond to the challenges of climate change by addressing issues associated with that phenomenon and, in particular, by providing for the setting of a target for the reduction of greenhouse gas emissions in the State as part of the national and international response to climate change; and
- b) to promote a commitment to action on climate change issues in Tasmania by providing for the development of –
  - i. interim State targets for the reduction of greenhouse gas emissions in the State; and
  - ii. suitable targets and interim targets, having the same aim, for specific sectors of the State's economy; and
- c) to help Tasmania take advantage of the new social, economic and environmental opportunities that climate change will present; and
- d) to provide for reporting and Parliamentary oversight of progress being made towards achieving the State's 2050 target and other targets; and
- e) to promote energy efficiency and conservation; and
- f) to promote research and development in the development and use of technology for reducing or limiting greenhouse gas emissions or for dealing with and adapting to the expected consequences of climate change, including technology for removing greenhouse gases from the atmosphere; and
- g) to promote and facilitate business and community consultation and early action on climate change issues; and
- h) to identify, promote and support measures to help Tasmania deal with and adapt to the expected consequences of climate change; and
- i) to promote a Tasmanian response to climate change issues that is as far as practicable consistent with national and international schemes addressing those issues, including any schemes for emissions trading and emissions reporting; and
- j) to enhance Tasmania's willingness and capacity to contribute and respond, constructively and expeditiously, to national and international developments in climate change issues





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