



# Options for a **Climate-Positive Tasmania**

Summary chart pack

Prepared by the **Tasmanian Policy Exchange**

[www.utas.edu.au/tpe](http://www.utas.edu.au/tpe)

October 2021



## Acknowledgement of Country

The University of Tasmania acknowledges, with deep respect, the traditional owners of this land, the Palawa people.

The Palawa people belong to the oldest continuing culture in the world. They cared and protected Country for thousands of years. They knew the land, they lived on the land and they died on the land. We honour them.

The University of Tasmania pays its respects elders past and present, to the many Aboriginal people that did not make elder status, and to the Tasmanian Aboriginal communities that continue to care for Country.

We acknowledge the profound effect of climate change on this Country and seek to work with the Tasmanian Aboriginal community and draw on their wisdom and traditional knowledge to address climate change and its impacts.

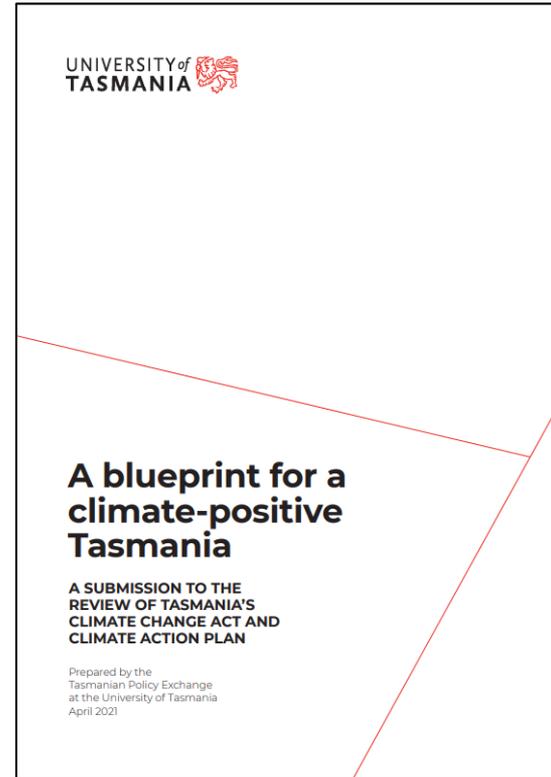
The University of Tasmania recognises a history of truth which acknowledges the impacts of invasion and colonisation upon Aboriginal people resulting in the forcible removal from their lands.

The University of Tasmania stands for a future that profoundly respects and acknowledges Aboriginal perspectives, culture, language, and history, and a continued effort to fight for Aboriginal justice and rights paving the way for a strong future.

# A vision for a climate-positive Tasmania

Tasmania has a unique opportunity to provide an example to the rest of the world of ambitious climate action

- We are facing a global climate emergency and the need for urgent action is clear.
- Radical change is needed but there might be no better place in the world where it can be demonstrated than in Tasmania.
- UTAS is deeply committed to climate action and to supporting the development and implementation of an ambitious climate-positive strategy.





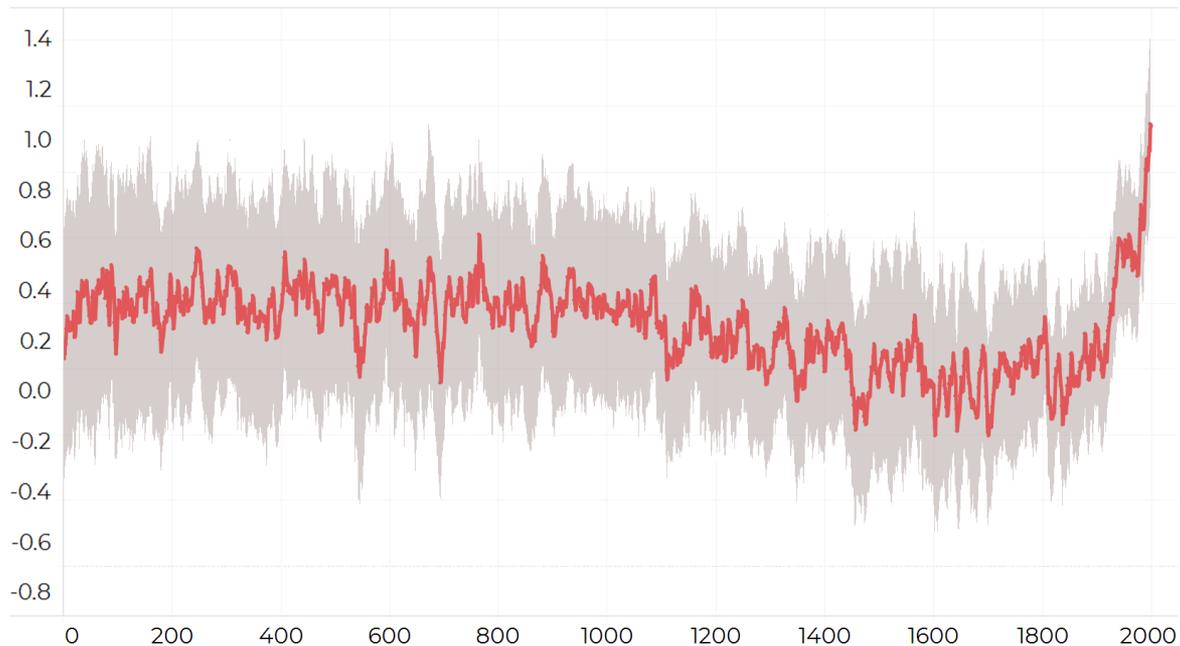
1. The case for urgent climate action, globally and in Tasmania

2. Strategies for reducing emissions in Tasmania

3. Managing climate risk: Systems-based adaptation planning

# The magnitude of the climate change emergency is undeniable

2000 Years of Global Temperature Change (0-2000 CE)



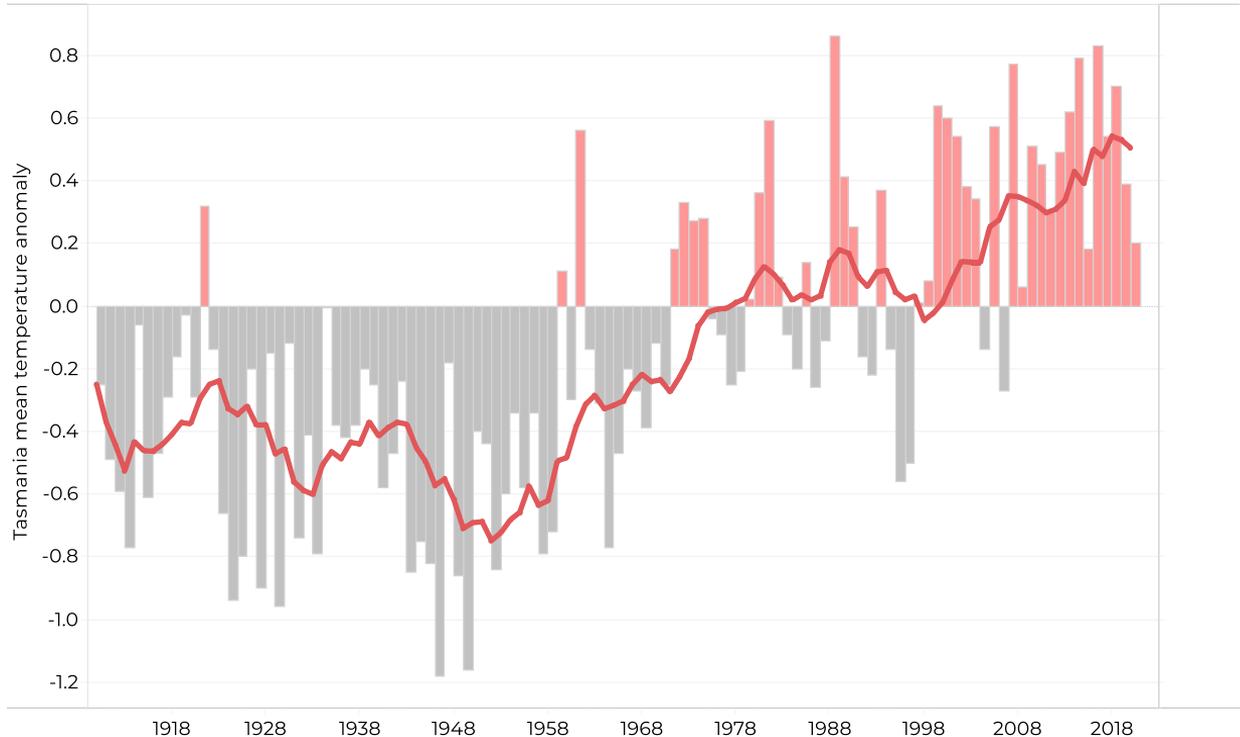
- The global climate is warmer than at any time in the last 100,000 years.
- Natural variation accounts for only 0.3°C of the 1.1°C warming experienced since pre-industrial times.
- On current trends, average global temperatures will be 1.5°C above pre-industrial levels by 2030, approaching 3°C by 2050.

# Tasmania will continue to be impacted by climate change

We may be less vulnerable than some places, but we still face enormous climate risks and significant temperature rise

- Detailed modelling by Climate Futures at UTAS and other researchers has identified significant state-level risks
- These risks are broadly consistent with the global trends but are mediated by local geographic and social factors
- Increasing fire risk is a particular concern

Tasmanian Mean Temperature Anomaly, Annual and 10-Year Rolling Average, 1910-2020



# Increasingly Tasmanians support and expect ambitious climate action



- 70-80% of Tasmanians support more aggressive climate action.
- Brand Tasmania research suggests that a broad cross-section of the community is committed to climate action, and this aligns with deeply held Tasmanian values and attitudes.
- The 2019 UTAS-ABC 'Curious Climate' collaboration reported that Tasmanians want more information about the causes of climate change, its associated impacts, and how they can act to address them.

# Now is the time for climate action

Tasmania has an opportunity to embrace an ambitious climate action strategy

- Following the release of the IPCC's *Sixth Assessment Report*, and with COP26 on the horizon, international **pressure for meaningful climate action is mounting**.
- Tasmania is developing a new *Climate Change Act* and *Climate Action Plan*. An independent review has outlined several options for Tasmanian climate policy.
- Tasmania is at a critical juncture and the decarbonisation of the global economy is underway. We have a choice: we can **embrace ambitious emissions reduction** and develop new technology and industries, **or risk being left behind** and pay the price.



Department of Premier and Cabinet  
Tasmanian Climate Change Office

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

Final Report

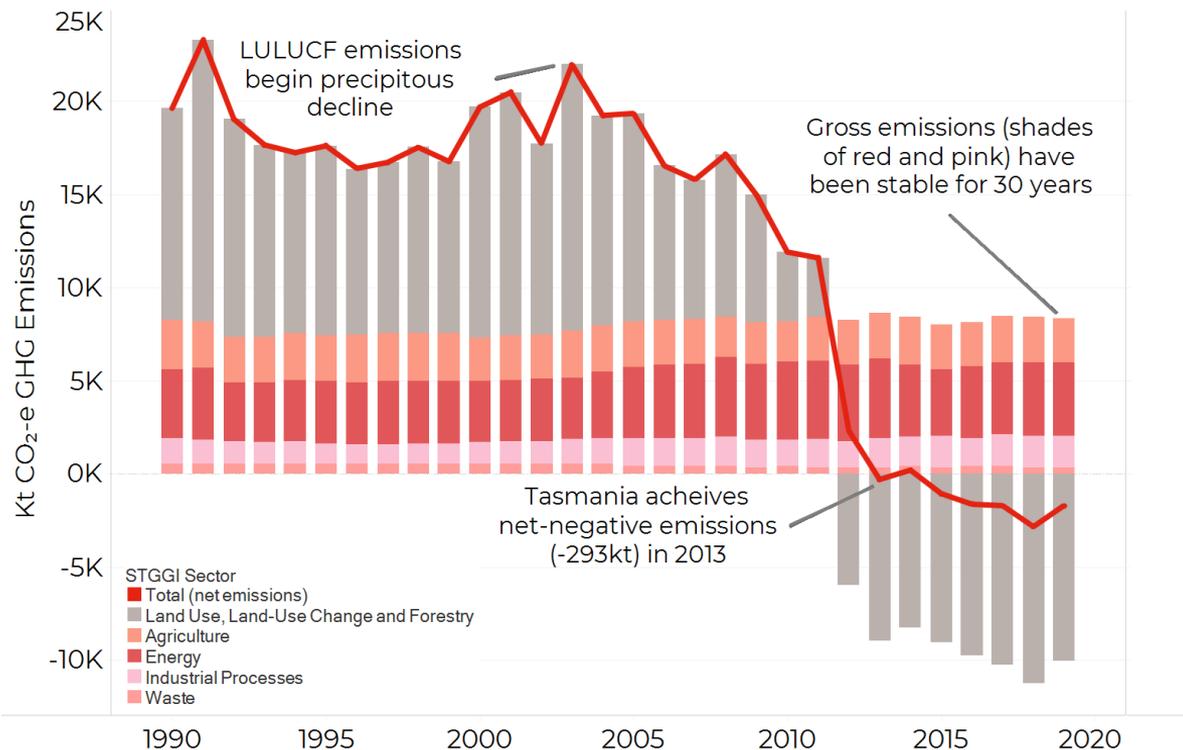
June 2021



**Jacobs** Challenging today.  
Reinventing tomorrow.

# Tasmania is one of the few places on earth with net-negative emissions

But concerted action will be required to maintain our world-leading negative profile



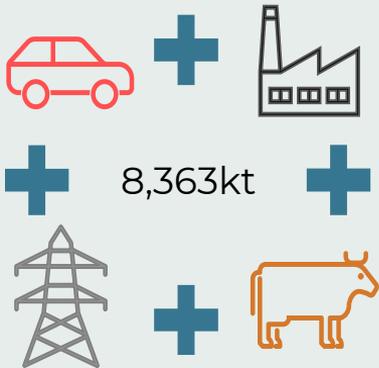
- Tasmania first recorded **net-negative emissions in 2013**, but this enviable status is almost entirely attributable to changes in land use.
- Gross emissions have not changed significantly in 30 years.
- Gross emissions in 2019 were actually slightly higher than in 1990.

# How can Tasmania maintain net-zero to 2030 and beyond?

Without significant emissions reduction, Tasmania is likely to exceed net zero in the near future

## Tasmania's Carbon Balance (2019)

### Gross emissions



### Removals



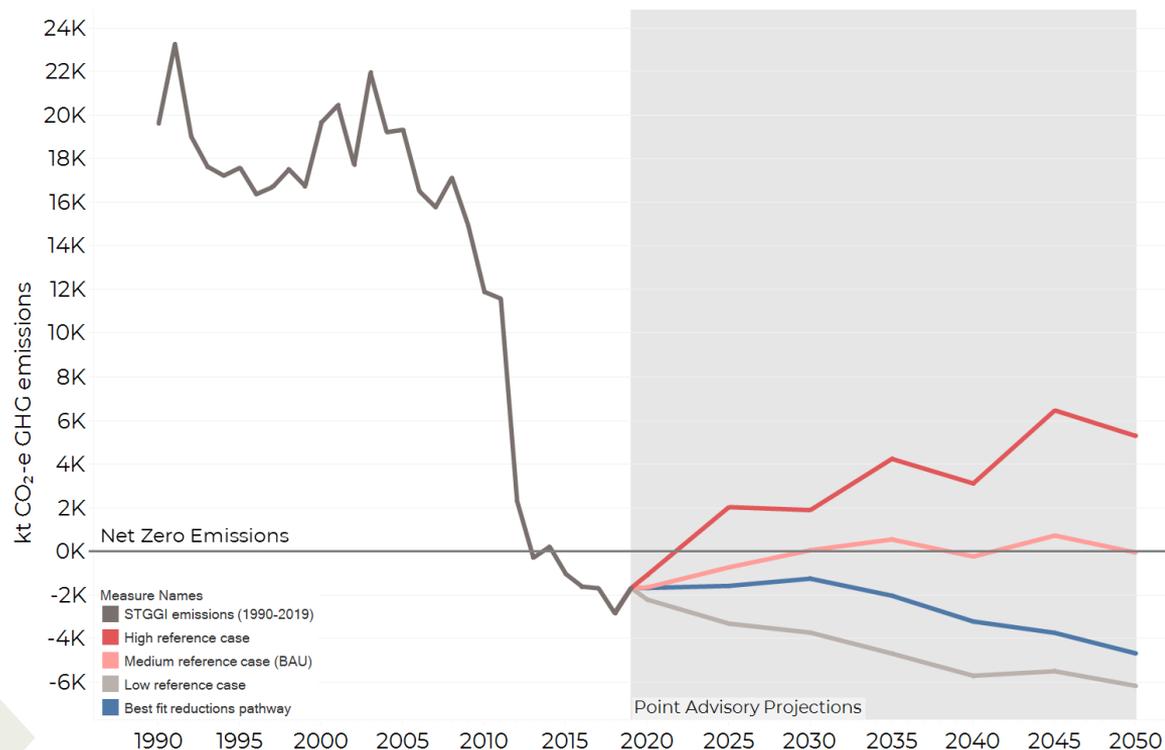
Net-  
Negative  
Emissions  
-1683 kt

- Tasmania's emissions are the sum of CO<sub>2</sub>-e pollution from all sectors of our economy, less removals from land-use change (LULUCF).
- The future of offsets from the land-use (LULUCF) sector is highly uncertain.
- However, modelling suggests that bushfires and land-use change could see Tasmania quickly return to a net-positive profile if we don't quickly and deeply cut our gross emissions.

# What emissions cuts are required to stay below net-zero?

Point Advisory's Emissions Pathway Review identified a range of credible emissions scenarios

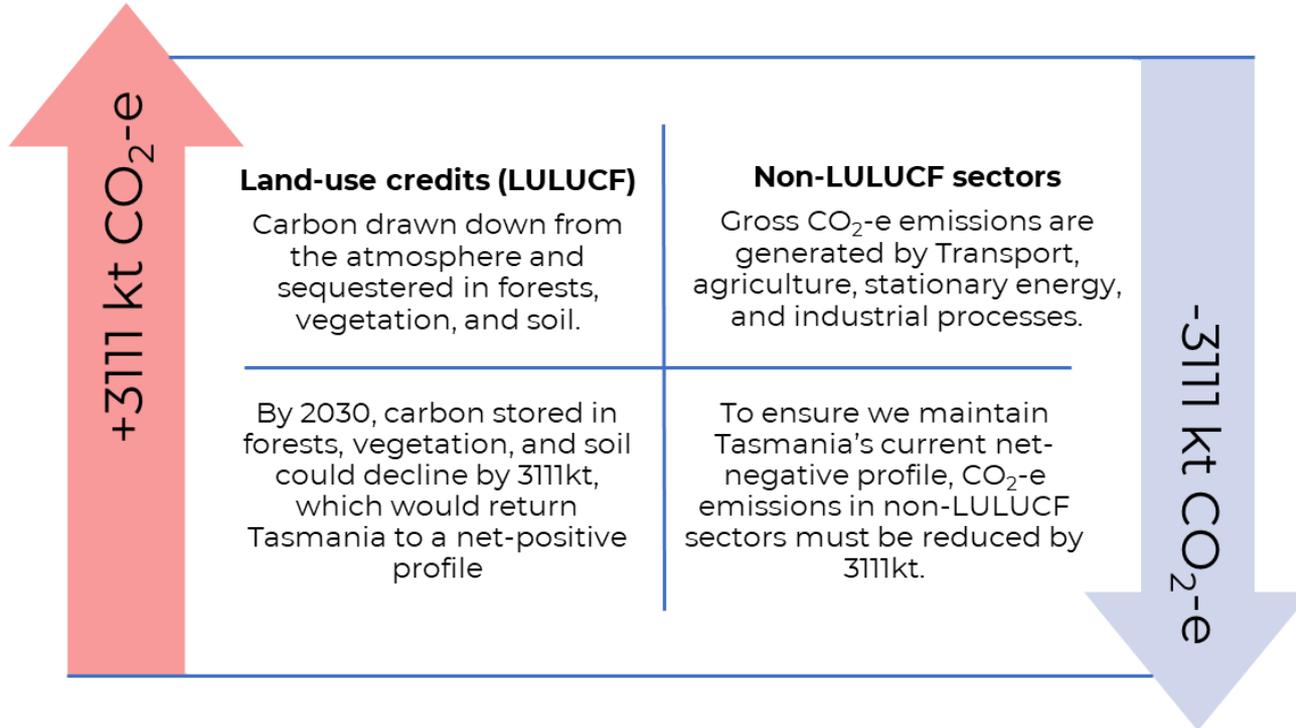
Tasmanian Net CO<sub>2</sub>-e Emissions and Point Advisory Modelled Emissions Trajectories, 1990-2050



- Under the high emissions scenario, **Tasmania could become a net emitter again as early as next year (2022)**.
- Tasmania's dependence on LULUCF offsets makes our net-negative profile very vulnerable.
- Additionally, bushfire risk and land clearing mean that the future of these offsets is highly uncertain.
- Given the precarious and uncertain future of land-use offsets, Tasmania should aim to retain its net-negative profile **even under a high LULUCF emissions scenario**

## What emissions reduction target is required to maintain the status quo?

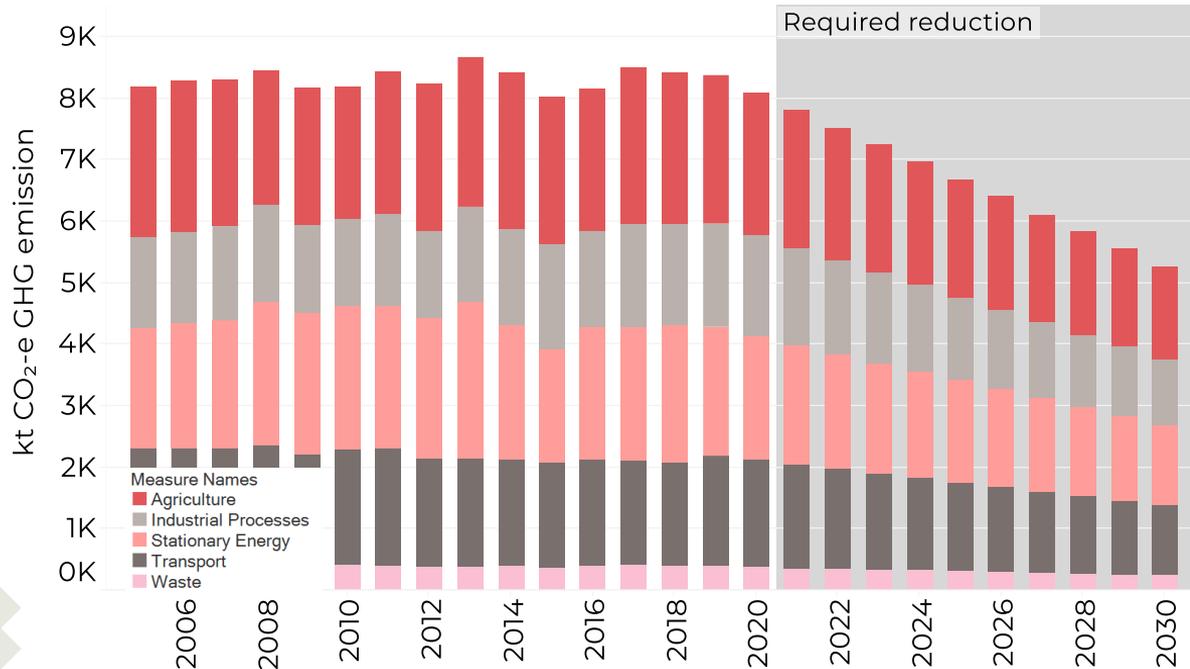
Based on modelling presented in the *Independent Review*, we have calculated the emissions reduction required to maintain our current net-negative profile through 2030 and beyond



# This equates to a 37% gross emissions reduction (excluding LULUCF) by 2030

Government modelling suggests this should ensure we maintain our current net-negative emissions profile to 2030 as land-use emissions increase

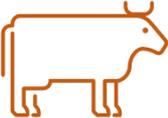
## Emissions Trajectory Required to Achieve 37% Gross Emissions Reduction



- In order to maintain a net-negative emissions profile through 2030 even under a high LULUCF emissions scenario, gross emissions in Tasmania would need to be cut by 37%.
- The uncertainty and vulnerability of land-use change offsets mean that preparation for a high LULUCF emissions scenario is essential.

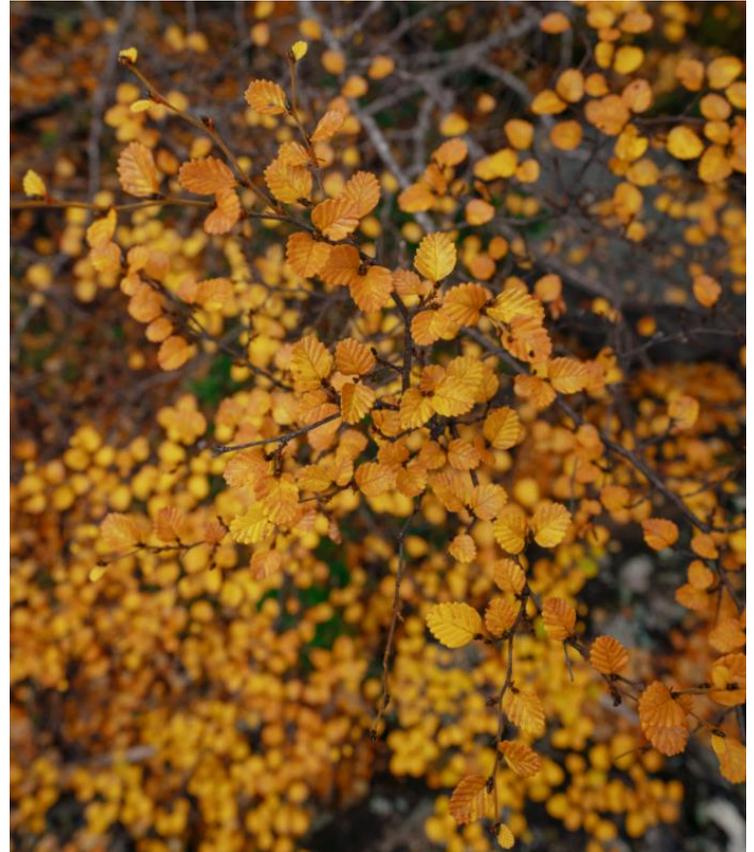
# Options for maintaining net-negative through 2030

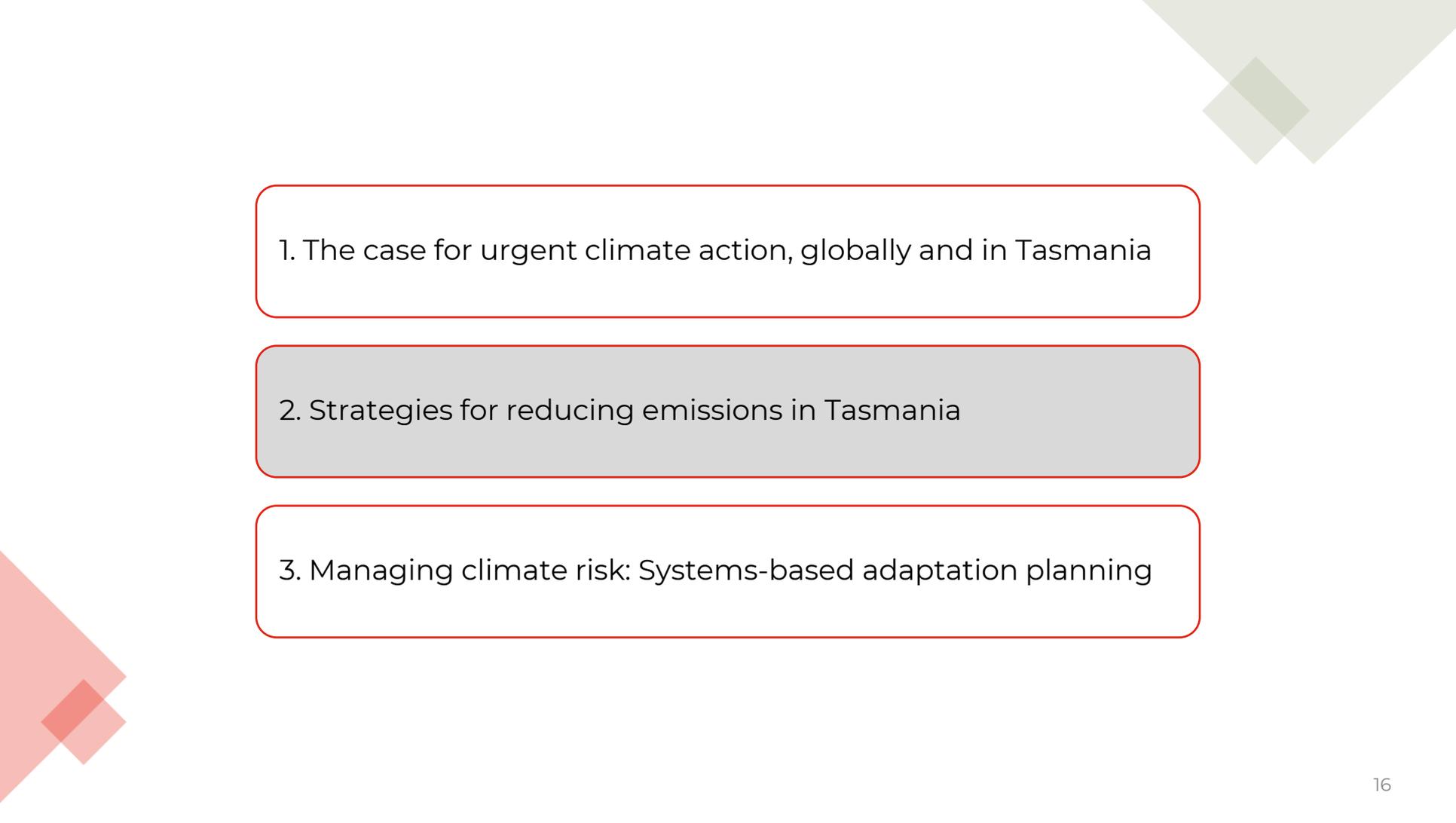
Option 3, in which the target is adjusted based on cost and opportunity for each sector, is the most feasible approach

	Option 1 Headline net target	Option 2 Uniform sectoral targets	Option 3 Weighted sectoral targets
	Indeterminate and potentially rising	37% reduction by 2030	10% reduction by 2030
	Indeterminate and potentially rising	37% reduction by 2030	32% reduction by 2030
	Indeterminate and potentially rising	37% reduction by 2030	60% reduction by 2030
	Indeterminate and potentially rising	37% reduction by 2030	47% reduction by 2030
	Heavy reliance on LULUCF offsets	Modest reliance on LULUCF offsets	Modest reliance on LULUCF offsets

## Why is net-negative so important?

- Maintaining net-negative emissions – **removing** more CO<sub>2</sub>-e **greenhouse gases** that we emit – is an environmental and moral imperative.
- As a state we can credibly claim to be addressing climate change by removing atmospheric CO<sub>2</sub>-e.
- A net-negative commitment will drive investment and innovation.
- It will also help to build our **international reputation** as an innovative, prosperous, responsible, and sustainable island providing a **global example on climate action**.
- It will ensure we don't get left behind as the rest of the world adopts low- or zero-carbon technologies.





1. The case for urgent climate action, globally and in Tasmania

2. Strategies for reducing emissions in Tasmania

3. Managing climate risk: Systems-based adaptation planning

## A vision for a climate-positive Tasmania has three elements

A comprehensive climate strategy requires more than just reducing emissions

### 1. Retain a net-negative emissions profile over the long term

- Continued reliance on LULUCF offsets will see Tasmania gradually return to a net-positive emissions profile – possibly as early as next year.
- An ambitious program of gross emissions abatement is essential.

### 2. Develop sectoral decarbonisation plans and innovation

- Tasmania's major gross emitting sectors must undertake a wholesale transformation over the coming decade.
- Point Advisory, as well as the UTAS *Blueprint*, have identified a suite of achievable abatement initiatives for all gross emitting sectors.

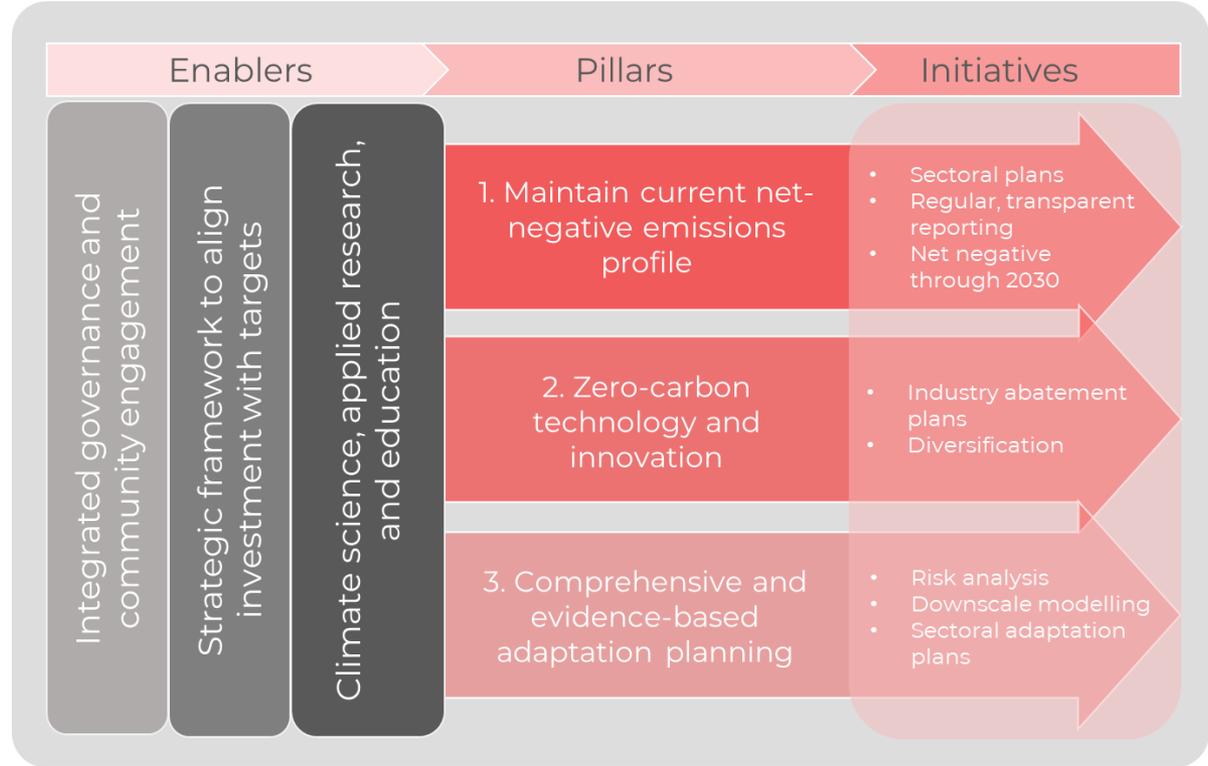
### 3. Undertake comprehensive systems-based adaptation planning

- Emissions abatement alone will not be enough. Decades of inaction have ensured that climate change is already causing irreparable damage.
- Adaptation planning will be critical to prepare for unavoidable climate change impacts.

# Climate positive: beyond reducing emissions, what else needs to be done?

A comprehensive approach to climate action has multiple dimensions

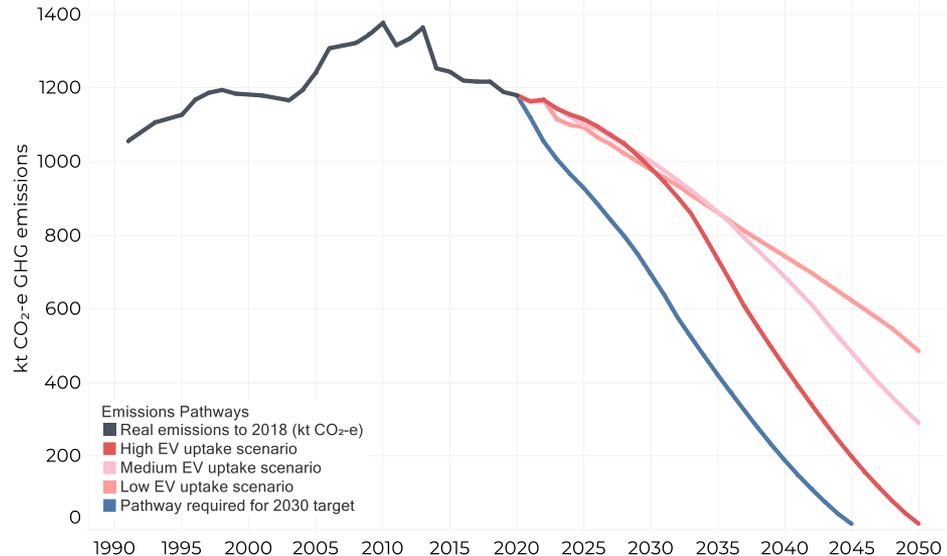
- An effective climate change mitigation strategy must be guided by robust data and evidence.
- Climate change considerations must be 'mainstreamed' across all policy areas and government decisions.
- Effective, transparent governance and regular reporting are also essential.



# Options for industry decarbonisation plans: Transport

- Emissions from private car transport are a significant contributor to Tasmania's overall gross emissions.
- Abating these will require **a rapid electrification** of our transport systems as well as **increased uptake of public and active transport options**.
- Electric vehicles are not a silver bullet, and will only reduce emissions if renewable energy generation can increase in line with demand.

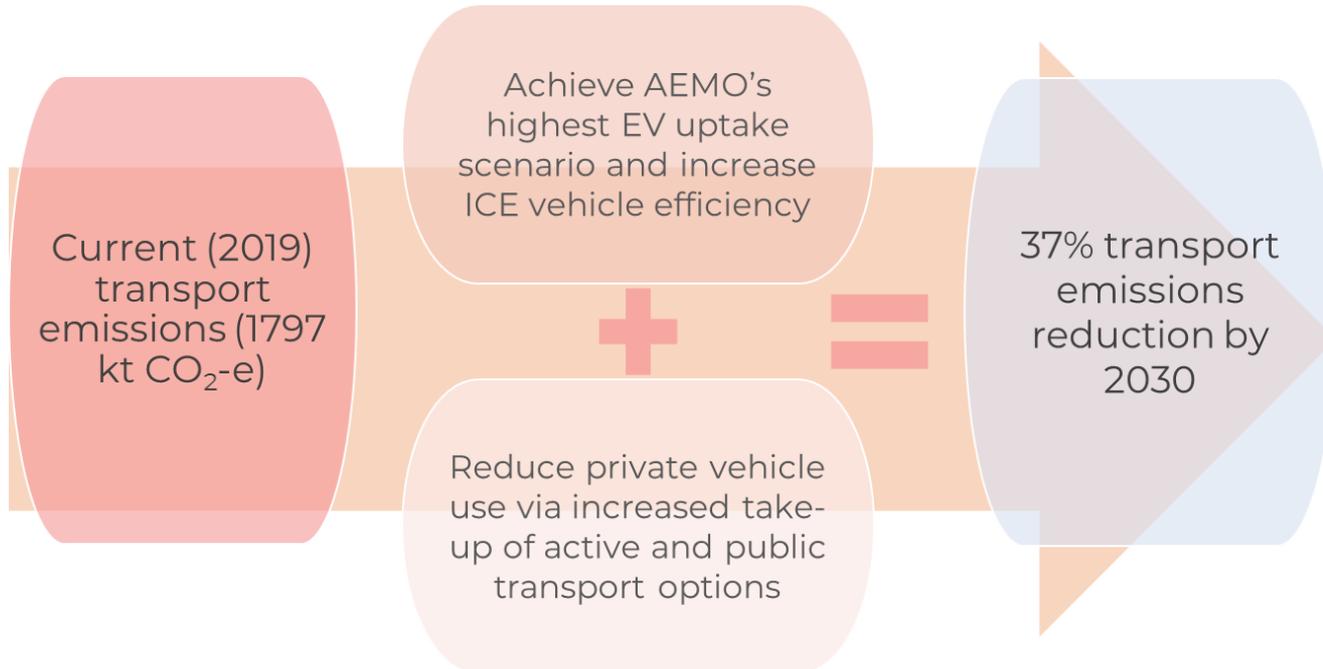
Transport Emissions Trajectory Under Three Different EV Uptake Scenarios



	2020	2025	2030	2035	2040	2050
Sales	644	3121	12069	30477	37398	54931
Market share	0.23%	1.78%	9.36%	28.69%	54.69%	98.08%

# Options for industry decarbonisation plans: Transport

- Abating transport emissions by the volume required to be reasonably confident of maintaining a net-negative emissions profile will require reducing Tasmanians' reliance on private vehicles in favour of public and active transport.



# Strategies to promote the uptake of zero-emissions vehicles

A coordinated approach is required to increase the uptake of ZEVs in Australia

Barrier	National strategies	State strategies	Local strategies
Limited vehicle supply and choice	<ul style="list-style-type: none"> <li>National CO<sub>2</sub>-e targets on new sales</li> </ul>	<ul style="list-style-type: none"> <li>Procurement policies</li> <li>Lobby Commonwealth on CO<sub>2</sub>-e targets</li> <li>Partner to promote imports</li> </ul>	<ul style="list-style-type: none"> <li>Procurement policies (public and private sector)</li> </ul>
Vehicle costs	<ul style="list-style-type: none"> <li>Luxury car tax</li> <li>Price on carbon</li> <li>Fringe benefits tax</li> <li>Direct subsidies (means tested)</li> </ul>	<ul style="list-style-type: none"> <li>Registration and stamp duty concessions</li> <li>Direct subsidies (means tested)</li> <li>Subsidised loans</li> </ul>	<ul style="list-style-type: none"> <li>Parking concessions</li> </ul>
Infrastructure and range	<ul style="list-style-type: none"> <li>National charging infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Charging infrastructure</li> <li>Home charging and smart grids</li> <li>Increased renewable electricity generation</li> </ul>	<ul style="list-style-type: none"> <li>Charging infrastructure</li> <li>Planning rules</li> </ul>
Awareness and education	<ul style="list-style-type: none"> <li>National commitment to promote ZEVs</li> <li>Promote solutions to barriers</li> </ul>	<ul style="list-style-type: none"> <li>Promote solutions to barriers</li> <li>Dealer education</li> <li>Distinguishable EV numberplates</li> </ul>	<ul style="list-style-type: none"> <li>'Try and Drive' EV days</li> <li>Prominent EV free parking</li> </ul>
Life cycle and longevity	<ul style="list-style-type: none"> <li>'Cash for clunkers' buyback scheme</li> <li>Enhanced subsidies for low-income households</li> </ul>	<ul style="list-style-type: none"> <li>Vehicle safety tests and emissions standards</li> </ul>	



# Options for industry decarbonisation plans: Agriculture

- Methane emissions from enteric fermentation (EF) in ruminating livestock account for 76% of Tasmania's agricultural emissions.
- Reducing these emissions with the help of novel feed supplements is the single biggest emissions reduction initiative identified in the Point Advisory *Emissions Pathway Review*.
- Abating EF emissions would bring considerable co-benefits.
- Increasing carbon stored in soils and vegetation is another significant opportunity for emissions reduction in the agriculture sector.



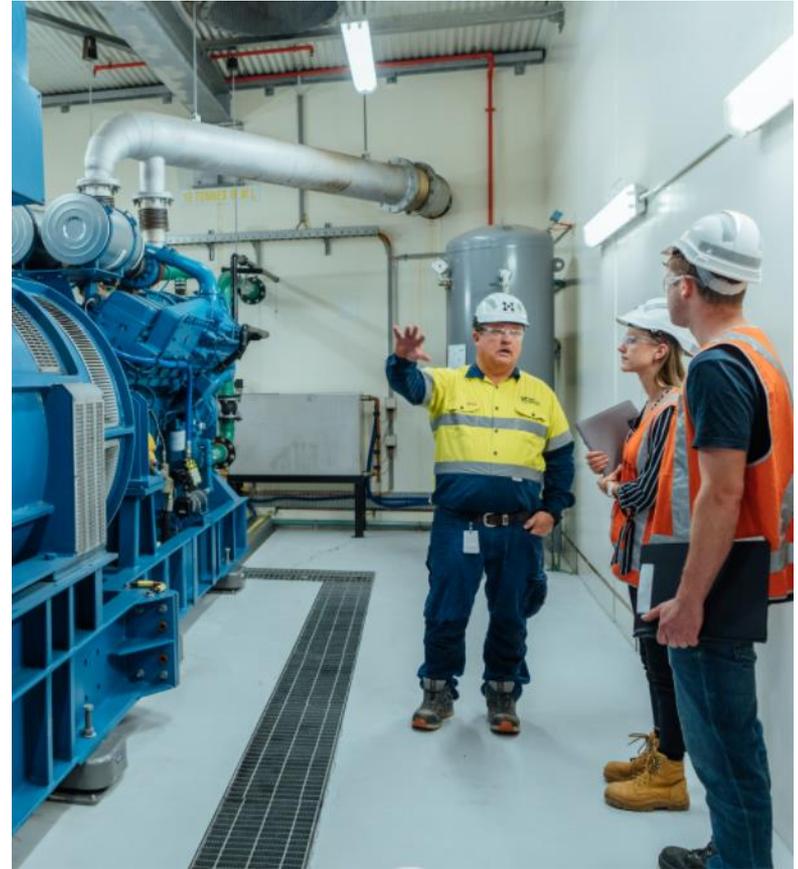
# Options for industry decarbonisation plans: Industrial processes



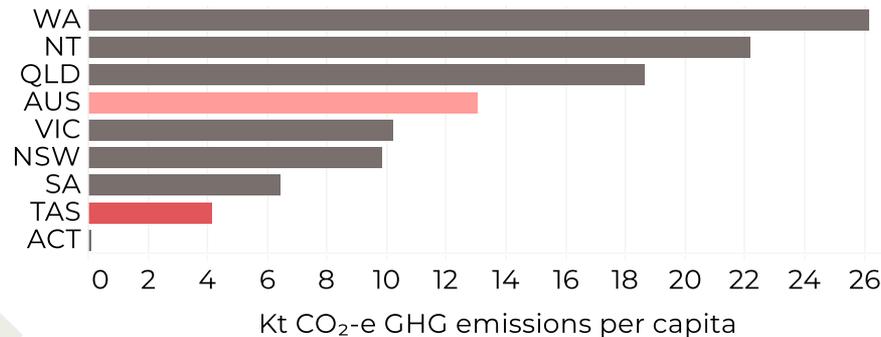
- The industrial processes sector contributed 36% of gross Tasmanian CO<sub>2</sub>-e emissions in 2019 – a substantial portion of the state’s overall emissions.
- The cost of emissions reduction in this sector is high and most major abatement opportunities could not feasibly be implemented over the coming decade.
- One advantage for Tasmania is that industrial emissions in the state are produced by a small handful of large emitters. Working closely with these facilities to develop specific, targeted decarbonisation pathways will be essential.

# Options for industry decarbonisation plans: Stationary energy

- Tasmania has an almost entirely renewable electricity system (even though connection to the national energy market means that we are not using 100% renewable electricity 100% of the time).
- However, stationary energy (excluding transport) still contributes around 2000kt to the state's gross CO<sub>2</sub>-e emissions. Abatement opportunities include increased uptake of biofuels and development of green hydrogen.



## Non-Transport Energy Emissions per Capita



# Discussion questions: Sectoral decarbonisation planning

- Are the targets for uptake of BEVs in Tasmania presented above sufficiently ambitious?
- What additional measures should the Tasmanian government consider to accelerate the uptake of BEVs in Tasmania?
- How can Tasmanians be encouraged to travel by public transport or by bicycle/e-bike?
- Which land management practices should be promoted to maximise land and soil-based carbon storage on Tasmanian farms?
- What precision agricultural practices can be adopted to improve the productivity of the sector while reducing emissions?
- How can fossil fuels be replaced and/or displaced with renewable energy options in land-based and marine agricultural processes?
- What energy efficiency strategies could be applied to Tasmanian industries to reduce emissions and increase productivity?
- How can we transition Tasmania's stationary energy systems from fossil fuels to green hydrogen and associated products?
- How can we improve the energy efficiency of homes, other buildings, and industrial processes to reduce demand for stationary energy?



1. The case for urgent climate action, globally and in Tasmania

2. Strategies for reducing emissions in Tasmania

3. Managing climate risk: Systems-based adaptation planning

# Systems-based adaptation planning: Bushfire preparedness



- The unavoidable impacts of climate change have already increased the intensity, range, and frequency of bushfires in Tasmania.
- Some parts of the state, including the South West Wilderness World Heritage Area, are beginning to experience bushfire risk for the first time in thousands of years.
- Integrated land management – including methods drawing on indigenous knowledge and practices – will be essential, as will better emergency management and community-wide bushfire preparedness.

# Systems-based adaptation planning: Agriculture (including terrestrial water systems) and aquaculture

- Climate extremes and changing weather patterns are set reshape Tasmania's agriculture industry.
- Increased drought, reduced rainfall overall despite more intense extreme rain events, and rising temperatures will all bring drastic changes to Tasmanian agriculture.
- Work practices, crops, properties, and even whole regions that are viable for agricultural production now may not be in 10, 20, 30, or 50 years time.
- Adaptation to climate change impacts in this sector will need to be rapid and far-reaching.



# Systems-based adaptation planning: Health and emergency management



- The increasing frequency and intensity of climate extremes will place a growing strain on Tasmania's health system and emergency management apparatus.
- The 2021 *Independent Review of the Tasmanian State Service* pointed out that the Tasmanian State Service (TSS) does not have the internal resources to deal with large-scale emergencies, relying on other organisations for 'essential inputs' and 'surge capacity'.
- Health risks associated with climate change fall disproportionately on the poor, the elderly, and those living with chronic illness.

## Systems-based adaptation planning: Ecosystems and habitat

- Tasmania's biodiversity and natural ecosystems will be heavily impacted by climate change.
- Bushfires, as well as other climate-related impacts such as drought and flood, will have a profound and negative impact on human settlements, ecosystems, and biodiversity in Tasmania.
- Important initiatives will include expanding Tasmania's conservation estate, identifying and protecting climate refugia, restoring connectivity in degraded landscapes, and expanding private land conservation.



# Systems-based adaptation planning: Built environments and transport

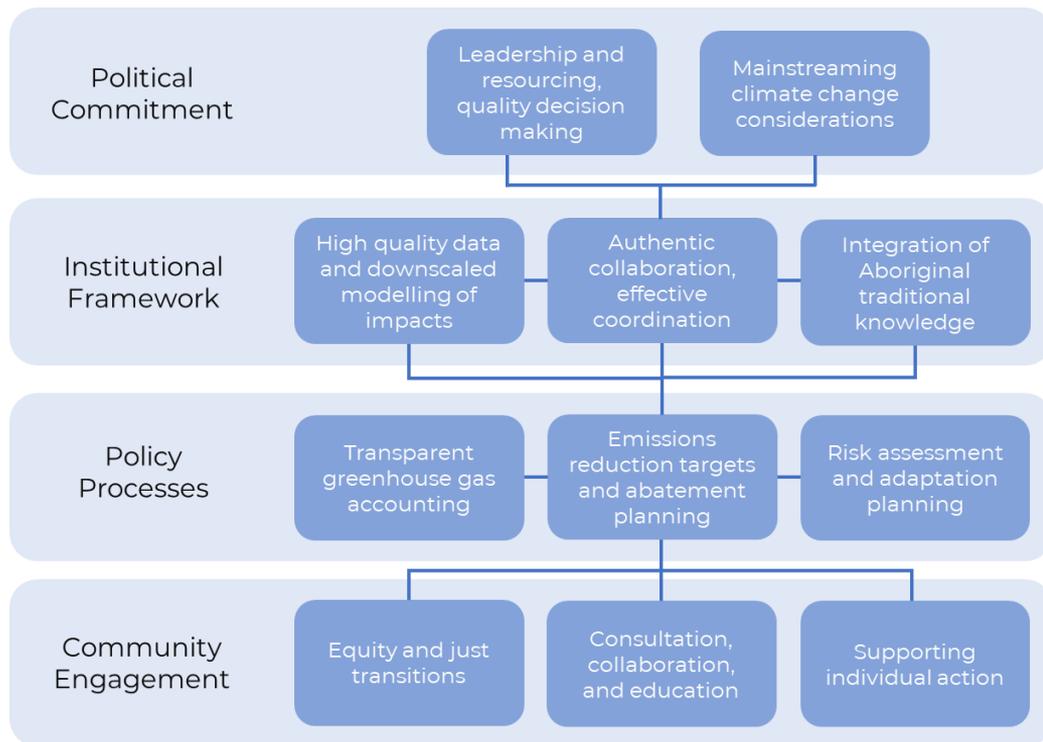


- Extreme weather events, coastal inundation in low-lying areas, and bushfire risks all pose considerable threats to Tasmania's built environment and transport systems.
- \$1 spent today on climate change adaptation and natural disaster preparedness can save as much as \$4 in future post-disaster reconstruction.
- Tasmanians must also be prepared for considerable financial strain as existing settlements or properties in low-lying or bushfire-prone areas start to become uninsurable.

## Discussion questions: Adaptation

- Are existing planning and fire management provisions appropriate given increasing fire risk?
- What forms of fuel and forest management can maximise carbon storage and biodiversity values?
- How can Tasmania best draw on the land management practices and knowledge of its Aboriginal traditional owners?
- How can income diversification for agricultural producers be supported as a key adaptation strategy to climate variability?
- How can we support vulnerable communities and cohorts for the growing health risks associated with climate change?
- Are our emergency services and infrastructure sufficiently resourced and prepared for increasing climate change risk?
- How should the Government prioritise what habitats to save and/or restore in the event of ecological disaster? And how can such actions be supported?
- What are the best models to incorporate climate-change consideration and risk assessment into the infrastructure and planning processes?
- Are our processes for assessing the vulnerability of infrastructure to climate risk adequate? Do we have the resources to ensure this infrastructure is climate-change ready?

# 'Good' climate governance



The challenge of governing for climate action stems from four interrelated factors:

1. The multiple scales and levels of political decision making involved.
2. The need for coordination and collaboration between state and non-state actors.
3. The deeply embedded nature of greenhouse gas emissions in processes of production and consumption.
4. The need for education that provides communities with accurate, reliable information while supporting and empowering individuals to take action.

# A strategic framework for supporting emissions reduction

Phasing out fossil fuels and decarbonising the economy is complex and will require a strategic policy framework

## Principles for supporting emissions reduction

- Subsidies and public investment focus on the initial stages of the energy transition
- Policy should be neutral between low-emissions technologies and providers
- Public investment should be open and transparent
- Policies should be consistent with the broader principles of climate justice

## Policy instruments for supporting emissions reduction

- Public subsidies can be phased out as low-emissions technologies become price competitive
- Funding research and innovation in new tech
- Green finance to support capital investment in new technology and products
- Funding networks and shared infrastructure required for the energy transition

# Education and community awareness

- Educating Tasmanians, promoting community awareness, and supporting individual empowerment and agency in relation to climate action are crucial for effective climate governance.
- Young people can be active contributors in creating a climate-positive Tasmania, but they need opportunities to showcase leadership and for their ideas to be viewed as valid and legitimate.
- Professional learning to support educators and a stronger policy mandate to teach about climate change and for climate action are needed.





# Thank you

Presentation prepared by  
the **Tasmanian Policy  
Exchange**

<https://www.utas.edu.au/tpe>