

Department of State Growth

Budget Estimates Briefing
Minister for Environment and Climate Change

Subject:	CLIMATE CHANGE STRATEGIC PRIORITIES
Date prepared:	1 May 2023
Output Group:	Climate Change
Output:	7.2 Climate Change

KEY MESSAGES

- **The Tasmanian Government is committed to taking strong action on climate change.**
- **Delivery of the Tasmanian Government's legislative and policy commitments over the next two years will support Tasmania to further reduce its emissions and maintain its net zero status to 2030 and into the future, and improve the capacity of Tasmania's economy, communities, and environment to adapt to the impacts of a changing climate.**
- **The government's climate change strategic priorities include: whole-of-government climate change action plan, sector-based Emissions Reduction and Resilience Plans, statewide climate change risk assessment, updating fine-scale climate change projections for Tasmania, whole-of-government policy framework to embed climate change consideration in government decision making, and review of climate change governance arrangements.**

Speaking points:

Tasmania's next climate change action plan

- **Tasmania's Climate Change Action Plan 2023-25 is a whole-of-government plan that will guide the government's action on climate change through to 2025.**

- The action plan includes practical actions to be implemented by both Renewables, Climate and Future Industries Tasmania (ReCFIT) and other departments that will improve information and knowledge about climate change, reduce emissions and build resilience to the impacts of climate change.
- Funding of \$10 million was allocated in the 2021-22 State Budget to implement the action plan. In addition to the delivery of the legislated measures under the *Climate Change (State Action) Act 2008* (the Act), the funding will support delivery of several key projects over the next two years, in recognition of the need for urgent action on climate change.

Sector-based Emissions Reduction and Resilience Plans

- Recent amendments to the Act require the government to develop sector-based Emissions Reduction and Resilience Plans (Plans) in consultation with business and industry. The Plans are required to support greenhouse gas emissions reduction, the transition to a low emissions economy, and resilience to climate-related risks.
- Six sectoral Plans will be developed, one each for the following sectors: transport; energy; waste; industrial products and product use; agriculture; and land use, land use change and forestry.
- The government has also committed to a government operations Emissions Reduction and Resilience Plan. The Plan will be developed in conjunction with a whole-of-government policy framework to embed climate change consideration in government decision making.
- The first sector to be considered is the transport sector. Workshops and targeted one-on-one consultation were held in May 2023.
- Outputs from the development process will be a State of Play Report for each sector, draft Plans for public consultation, and final Plans to be tabled in Parliament.
- The Act requires that the six sector Plans are completed within two years of the amendments to the Act (by November 2024), except the Plan for the transport sector, which is to be completed within 12 months (by November 2023).
- The Plans will be updated every five years.

Statewide climate change risk assessment

- Consultancy firm Deloitte has been engaged to support the delivery of the Risk Assessment, in partnership with Renewables, Climate and Future Industries Tasmania. Deloitte have worked with New Zealand, New South Wales and the Australian

Government on their climate change risk assessments. The Risk Assessment will consider:

- the economic, social and environmental implications of climate change and the associated risks to Tasmanian communities, natural environments and ecosystems, and economic activity, and the risks associated with energy transition
- the impact of climate change on the health and wellbeing of Tasmanians and future generations.
- The Risk Assessment will assist the government to prioritise actions that support adaptation to the impacts of climate change.
- The Act requires the Risk Assessment to be tabled in Parliament. Communicating the project findings to a broad public audience will be a priority.

Updating fine-scale climate change projections for Tasmania

- Scoping of the project to update Tasmania’s fine-scale climate change projections has commenced and will be delivered through Tasmania’s Climate Change Action Plan 2023-2025, coordinated with related national work programs.
- This process involves “downscaling” or translating coarse-resolution Global Climate Model outputs into finer-resolution climate information to better account for regional climatic differences, such as local topography.
- Finer-resolution climate information is particularly relevant for Tasmania, as coarse-resolution global climate models do not account for Tasmania’s topography (in particular, the state’s mountainous terrain) which drives significant regional differences in weather across the state.
- Fine-scale climate change projections are used by a range of stakeholders and play an important role in the development of climate change policy, decision making and investment decisions.

Whole-of-government policy framework to embed climate change consideration in government decision making

- In response to the independent review of the *Climate Change (State Action) Act 2008* and consultation feedback, the government has committed to develop a whole-of-government policy framework to ensure relevant government plans, policies and strategies are guided by climate change considerations.
- An Emissions Reduction and Resilience Plan for Government Operations will be developed in conjunction with this policy framework, which will incorporate emissions reduction, transition to a low emissions economy, and resilience to climate-related risks.

- Implementation of the framework will be informed by the principles recommended by the most recent independent review of the Act:
 - sustainable development and social equity
 - transparency and reporting
 - science-based approach
 - integrated decision making
 - risk management
 - community engagement
 - complementarity.
- The framework, likely to be completed by mid-2024, will build the capacity and capability of the Tasmanian Government to embed climate change into relevant decision making.

Review of climate change governance arrangements

- The government has committed to undertake a review of climate change governance arrangements, with a view to table legislation in Parliament to establish an advisory body on climate change within 18 months of the commencement of the amended Act (mid-2024).
- The Review will examine and provide advice on the effectiveness and costs of climate change advisory bodies in other jurisdictions, the operation of the Climate Change Reference Group, and other governance models.
- This advice will inform the government's deliberations of whether and how to give effect to an advisory-type body on climate change in Tasmania.

Consultation and engagement

- The government's strategic priorities will be managed by the Climate Change Office in close consultation with relevant agencies.
- The Minister has established and will Chair the Climate Change Reference Group to provide strategic advice and feedback on these priorities and emerging opportunities in mitigation and adaptation. The Reference Group comprises members of relevant peak industry and community groups, businesses, state and local government, youth representatives, and academics with expertise in climate change mitigation and adaptation.
- There are statutory requirements to consult with the following groups on a range of issues: relevant business, industry, scientific, environmental and community bodies, children and young people, local government, trade unions, the peak body representing trade unions in Tasmania, and the Tasmanian community.

This consultation requirement will be met through meetings, targeted workshops, public forums, written submissions and the Climate Change Reference Group.

Transparency and reporting

- The government is required under the Act to prepare and publish an annual greenhouse gas emissions report and an annual climate change activity statement.

Background:

Amendment of the *Climate Change (State Action) Act 2008*

- The Climate Change (State Action) Amendment Bill 2021 was developed in response to the findings of the most recent independent review of the Act, the Tasmanian Emissions Pathway Review, detailed economic analysis, and extensive consultation with business, industry and the community.
- The Bill was passed by Parliament and enacted in November 2022.
- Over 200 Tasmanian individuals and organisations participated in the independent review, and over 60 written submissions were received on the draft Bill.
- The amendments to the Act establish a whole-of-economy emissions reduction target of net zero emissions, or lower, from 2030 to provide a flexible approach to emissions reduction.
- Importantly, economic modelling commissioned by the government demonstrates that a target of net zero emissions, or lower, from 2030 is both achievable and credible, and could generate higher economic growth and more jobs.
- The proposed target recognises that sectors have different opportunities to reduce their emissions, and some will require more time, support and technological advances to transition to a low emissions future.
- In addition to sector-based Emissions Reduction and Resilience Plans, other measures of the amended Act include:
 - consolidating the existing ten objects of the Act around five key themes: emissions reduction target setting and emissions reporting, emissions reduction, climate adaptation, complementarity with national and international climate action, and establishing a consultative approach to climate action
 - establishing a legislative requirement for the Tasmanian Government to prepare a climate change action plan at least every five years, to ensure continued action to grow a climate-ready economy, reduce emissions and adapt to climate change. The Act requires that accessible versions of climate change action plans be developed for a wide range of the community, including children and young people
 - establishing a legislative requirement for a statewide climate change risk assessment to be completed within two years and then every five years
 - a number of measures to increase the transparency and accountability of the government's climate change response, including a requirement to table in Parliament additional annual reports on greenhouse gas emissions and climate action.

Department of State Growth

Budget Estimates Briefing
Minister for Environment and Climate Change



Subject:	EMISSIONS REDUCTION AND RESILIENCE PLANS
Date prepared:	1 May 2023
Output Group:	Climate Change
Output:	7.2 Climate Change

KEY MESSAGES

- **The Tasmanian Government’s legislative and policy commitments over the next two years will support Tasmania to further reduce its emissions and maintain its net zero status to 2030 and into the future, and improve the capacity of Tasmania’s economy, communities, and environment to adapt to the impacts of a changing climate.**
- **Recent amendments to Tasmania’s climate change legislation require the government to collaborate and consult with industry to develop sector-based Emissions Reduction and Resilience Plans (the Plans).**
- **The Plans will ensure that a practical and balanced approach is taken to reduce emissions and build resilience to the impacts of a changing climate.**
- **Plans will be developed for the energy; transport; agriculture; land use, land use change and forestry; industrial processes and product use; and waste sectors.**
- **The Tasmanian Government has also committed to develop an Emissions Reduction and Resilience Plan for government operations to reduce the government’s own corporate emissions.**

Speaking points:

- As Minister for Environment and Climate Change, I have primary responsibility for the delivery of the Emissions Reduction and Resilience Plans. The Act includes provision for the Plans to be developed in consultation with relevant portfolio Minister(s).
- The purpose of the plans is to develop pathways for key sectors to reduce greenhouse gas emissions that support Tasmania achieving its target of net zero emissions, or lower, from 2030, and build resilience to the impacts of climate change.
- Under the Act, the plans must support greenhouse gas emissions reduction, transition to a low emissions economy, and resilience to climate-related risks.
- The government will release:
 - a State of Play Report for each sector, that summarises the sector in Tasmania, emissions from the sector, relevant policies and actions at the local, national and international level, impacts of climate change on the sector, and opportunities to reduce emissions and build resilience
 - a draft Emissions Reduction and Resilience Plan for community feedback
 - the final Emissions Reduction and Resilience Plan, to be tabled in both Houses of Parliament.
- The development of the Emissions Reduction and Resilience Plans will be led by the Climate Change Office in Renewables, Climate and Future Industries Tasmania.

Timing

- The Act requires that the six industry sector Plans are completed within two years of the amendments to the Act (by November 2024), except the Plan for the transport sector, which is to be completed within 12 months (by November 2023).
- The amended Act requires the Emissions Reduction and Resilience Plans to be renewed every five years.

Consultation

- The amended Act contains specific requirements for the Plans to be developed in collaboration with business and industry, and in consultation with the community.
- The Climate Change Office will manage the stakeholder consultation process, through targeted consultation workshops, meetings and community feedback.

Background:

- In June 2021, consulting firm Jacobs Group (Australia) delivered the third independent review of the *Climate Change (State Action) Act 2008* (the Act). The independent review made seven recommendations to amend the Act. Recommendation seven was to require the completion of sector-based decarbonisation plans.
- On 10 November 2022, the Climate Change (State Action) Amendment Bill 2021 passed both Houses of Parliament and was enacted on 30 November 2022. The amendments were developed in response to the findings of the independent review, the Tasmanian Emissions Pathway Review, detailed economic analysis, and extensive consultation with business, industry and the community.
- A consistent theme in relation to sectoral emissions reduction and resilience planning was that a partnership approach between the Tasmanian Government and industry is preferred.
- Industry stakeholders also noted that appropriate education and training may be required to prepare Tasmania's industries for a lower emissions future, due to the emerging skills and roles required to decarbonise operations, products, and services.

Released under RTI

Department of State Growth

Budget Estimates Briefing
Minister for Environment and Climate Change



Subject:	IMPACTS OF A CHANGING CLIMATE ON TASMANIA
Date prepared:	27 April 2023
Output Group:	Climate Change
Output:	7.2 Climate Change

KEY MESSAGES

- Through the *Climate Change (State Action) Act 2008* and Tasmania's **Climate Change Action Plan 2023-2025**, the Tasmanian Government is delivering practical action and working with industry and communities to identify and manage the risks and opportunities of a changing climate.
- The benefits of this action include supporting communities to prepare for and recover from natural hazard events, minimising economic disruption, maintaining ecological and ecosystem health, maintaining community health and wellbeing, and taking advantage of emerging opportunities as part of the broader transition to a low carbon economy.
- Strong evidence of Tasmania's projected future climate change is important to inform the development of climate adaptation measures and support continued economic growth under a changing climate.
- **Climate Futures for Tasmania**, developed in 2010, is the most comprehensive source of fine-scale climate projections for Tasmania.
- Delivering updated fine-scale climate projections for Tasmania is a key action in Tasmania's **Climate Change Action Plan 2023-2025**.

Speaking points:

- Under a changing climate, Tasmania's terrestrial environments are projected to experience a rise in annual average temperatures, significant changes in seasonal and regional rainfall patterns, an increase in rainfall intensity and associated flooding, and longer, more intense fire seasons.
- Coastal and marine environments will be impacted by rising sea levels, an increase in storm events and associated coastal erosion and inundation, increasing sea surface temperatures, ocean acidification, changing nutrient levels, and changes in species distribution.
- The *Climate Change (State Action) Act 2008* (the Act) includes a range of measures that will improve Tasmania's capacity to adapt to the impacts of a changing climate. The Act establishes requirements for the Tasmanian Government to prepare:
 - five-yearly climate change action plans. The Act requires a climate change action plan to include measures that build resilience to the impacts of climate change through adaptation measures.
 - five-yearly statewide climate change risk assessments. The Act requires the first risk assessment to be delivered within two years of the commencement of the Act (November 2024) and then at least every five years.
 - sector-based emissions reduction and resilience plans. The Act requires the plans to support the transition to a low emissions future and build resilience to climate change-related risks for each sector.
- Through the delivery of Tasmania's Climate Change Action Plan 2023-2025, the Tasmanian Government is delivering a range of measures that will improve the state's capacity to adapt to the impacts of a changing climate, including:
 - Tasmania's first Statewide Climate Change Risk Assessment (Risk Assessment)
 - sector-based emissions reduction and resilience plans
 - a program to build capability to support climate change action in local government
 - a program to manage the impacts of coastal hazards under a changing climate
 - updated fine-scale climate projections for Tasmania
 - a whole-of-government policy framework to ensure climate change is considered in government decision making.

Risk Assessment

- Tasmania's first climate change Risk Assessment will consider:
 - the economic, social and environmental implications of climate change and the associated risks to Tasmanian communities, natural environments and ecosystems, and economic activity, and the risks associated with energy transition
 - the impact of climate change on the health and wellbeing of Tasmanians and future generations.
- The Risk Assessment will assist the government to prioritise actions that support adaptation to the impacts of climate change.
- The Act requires the Risk Assessment to be tabled in Parliament. Communicating the project findings to a broad public audience will be a priority.

Programs with local government

- Building on the outcomes of the Climate Resilient Councils project, the Tasmanian Government will develop and implement a statewide program for climate change action in local government, in partnership with Tasmania's local government sector, to build the sector's capacity to respond to the impacts of a changing climate and reduce greenhouse gas emissions.
- To strengthen the state's approach to managing the impacts of coastal hazards under a changing climate, the Tasmanian Government will work with coastal managers across state and local government to develop a consistent statewide approach to managing the impacts of coastal hazards under a changing climate..

Future climate information

- Tasmania's climate adaptation actions are informed by Climate Futures for Tasmania, Tasmania's fine-scale climate change projections, which detail how Tasmania's climate is likely to change over time through to 2100.
- Scoping of the project to update Tasmania's fine-scale climate change projections has commenced and will be delivered through Tasmania's Climate Change Action Plan 2023-2025, coordinated with related national work programs.
- The Tasmanian Government continues to work with Tasmania's world class Antarctic, Southern Ocean and climate science research community, and other partners in government and industry, to improve our understanding of Tasmania's future climate.

Background

Tasmania's projected future climate

Table 1: Climate projections for Tasmania

Variable	Projection	Source (date of publication)
Rainfall	<ul style="list-style-type: none"> • No significant change to projected total statewide annual rainfall. • Projected changes to the regional distribution of rainfall across the state: <ul style="list-style-type: none"> - The west coast is projected to experience a significant increase in rainfall in winter, and a significant decrease in rainfall in summer after 2050. - The central plateau district is projected to experience a steady decrease in rainfall in every season out to 2100. - The north east coast is projected to experience a steady increase in autumn and summer rainfall. 	<i>Climate Futures for Tasmania</i> , Antarctic Climate and Ecosystems Cooperative Research Centre (2010)
Temperature	<ul style="list-style-type: none"> • Increase in average temperature by about 2.9°C under a high emissions scenario, and about 1.6°C under a low emissions scenario. • Temperature increases in Tasmania are projected to be less than the projected global average temperature rise, due to the moderating influence of the Southern Ocean. 	<i>Climate Futures for Tasmania</i> , Antarctic Climate and Ecosystems Cooperative Research Centre (2010)
Sea level	<ul style="list-style-type: none"> • 2050: sea level rise of 0.17m to 0.22m, relative to 2010 values. • 2100: sea level rise of 0.22m to 0.70m, relative to 2010 values. 	<i>Sea-Level Rise and Allowances for Tasmania based on the IPCC AR5</i> , CSIRO (2016)
Wind	<ul style="list-style-type: none"> • 0-5 per cent increase in windspeed statewide by 2090 (high emissions scenario). 	<i>Climate Change 2022: Impacts, Adaptation and Vulnerability</i> , Intergovernmental Panel on Climate Change (2022)
Sea surface temperature	<ul style="list-style-type: none"> • Increase in mean statewide sea surface temperature (SST) in all seasons by the end of the century. • Greater increase in SST in the east and north east than other regions, due to the southward extension of the East Australian Current. 	<i>Climate Futures for Tasmania</i> , Antarctic Climate and Ecosystems Cooperative Research Centre (2010)

Variable	Projection	Source (date of publication)
Evaporation	<ul style="list-style-type: none"> • Increase in pan evaporation of up to 19 per cent by 2100. 	<i>Climate Futures for Tasmania, Antarctic Climate and Ecosystems Cooperative Research Centre (2010)</i>
Storm events	<ul style="list-style-type: none"> • Increased frequency and intensity of storm events. • Increased instances of coastal erosion and coastal inundation. 	<i>Australia Southern Slopes Cluster Report, CSIRO (2015)</i>
Bushfire weather	<ul style="list-style-type: none"> • Longer fire seasons and more days at the highest range of fire danger. 	<i>Australia Southern Slopes Cluster Report, CSIRO (2015)</i>
Heat events	<ul style="list-style-type: none"> • More hot summer days and more heatwaves. 	<i>Australia Southern Slopes Cluster Report, CSIRO (2015)</i>

Recent measures to build resilience to the impacts of a changing climate

- Across government, a range of actions have been implemented or are underway that improve the state's capacity to adapt to the impacts of a changing climate, including:
 - a horizon scanning framework that will analyse and prioritise Tasmania's strategic disaster risks across a range of threats and hazards (including climate change)
 - development of a risk information portal for Tasmania that spatially enables municipal emergency risk assessments
 - the Tasmanian Disaster Resilience Strategy 2020-2025 and development of Tasmania's Disaster Resilience Strategy 2026-2030
 - development of Regional Drought Resilience Plans for the north, north west and south that prioritise and guide local actions to build Tasmania's resilience to future droughts
 - the Tasmanian Strategic Flood Mapping Project
 - statewide mapping of natural hazards, including coastal erosion and inundation, publicly available on LISTmap
 - statewide sea level rise planning allowances for municipalities
 - enterprise suitability mapping
 - the Climate Research Grants Program
 - the Tasmanian State Natural Disaster Risk Assessment 2022
 - the Catchment Yield Science Update Project, which will identify contemporary climate change projection datasets to update hydrological estimates for Tasmania
 - review of the *Fire Service Act 1979*
 - embedding climate change considerations into the State Planning Provisions and Tasmanian Planning Policies
 - understanding the impacts of climate change on bushfire risk in the Tasmanian Wilderness World Heritage Area

- the Climate Resilient Councils program, which supported 17 councils to understand and improve how climate change is considered by their council when making strategic and financial decisions
- understanding and managing the impacts of coastal hazards on existing settlements and values (Action 5.4 from Climate Action 21).

Tasmania's climate projections

- Climate Futures for Tasmania (CFT) is the Tasmanian Government's most important source of downscaled climate change projections, and an essential part of Tasmania's climate change response.
- Downscaling is a process where coarse-resolution Global Climate Model outputs are translated into finer-resolution climate information so that they better account for regional climatic differences, such as local topography.
- This is particularly relevant for Tasmania, as coarse-resolution global climate models do not account for Tasmania's topography (in particular, the state's mountainous terrain) which drives significant regional differences in weather across the state.
- Fine-scale climate change projections also play an important role in the development of climate change adaptation measures.
- CFT was developed in 2010 and provided the first fine-scale climate information for Tasmania.
- A new set of global climate model outputs is available through the Coupled Model Intercomparison Project Phase 6 (CMIP6), presenting an opportunity to update national and state climate projections.
- The Climate Change Office in Renewables, Climate and Future Industries is exploring options to update Tasmania's climate projections.

Department of State Growth

Budget Estimates Briefing
Minister for Energy and Renewables
Minister for State Development, Construction and Housing



Subject: BATTERY OF THE NATION
Date prepared: 5 May 2023
Output Group: 7 Renewables, Climate and Future Industries Tasmania
Output: 7.1 Energy and Renewables

Speaking points

- Tasmania has a renewable resource that can aid the transitioning National Electricity Market through providing access to low cost, reliable and clean electricity.
- Hydro Tasmania can play an important firming role when the wind isn't blowing or the sun isn't shining by upgrading existing hydropower schemes and the construction of a new pumped hydro station.
- Hydro Tasmania has identified that the Lake Cethana site is the preferred pumped hydro site and the business continues to progress the potential redevelopment of the Tarraleah hydropower scheme.
- The Federation Funding Agreement (FFA) signed in April 2022 provided a \$123 million commitment from the State, the Australian Government, and Hydro Tasmania to progress work for a potential redevelopment of the Tarraleah hydropower scheme.
- On 19 October 2022, the Australian and Tasmanian Government signed a Letter of Intent (LoI) providing further support for Project Marinus and Battery of the Nation (BotN) projects.
- Under the LoI, the Australian Government has committed up to \$1 billion of concessional finance for the construction phase for BotN projects through the Australian Government Rewiring the Nation initiative, subject to a positive Final Investment Decision (FID).
- A FID for the Tarraleah hydropower scheme redevelopment is expected in 2024.
- ReCFIT's key responsibilities with regard to the BotN projects are to oversee the execution of FFA milestones and advise the Minister for Energy and Renewables on key aspects of those projects, such as business case development and tender and parliamentary processes.

Key Statistics

Jobs/Investment created:

- A pumped hydro project at Lake Cethana is estimated by Hydro Tasmania to cost around \$1.5 billion in the construction phase and could create up to 300 construction jobs.
- The redevelopment of Tarraleah hydropower scheme could create up to 250 jobs during peak construction.
- Further power station upgrades on the West Coast scheme are also possible in conjunction with planned renewal works and this is expected to create 70 jobs.

Unit/Program Budget:

- ReCFIT's funding for work related to BotN is sourced from the \$6 million allocated to the state as part of the 2019 Project Agreement for Marinus Link initiative provided by the Commonwealth Government. This funding is forecast to be expired by the end of 2023-24.
- ReCFIT has 0.1 of an FTE dedicated to the BotN projects.

Released under OIA

Background

Battery of the Nation (BotN) Work Program, pumped hydro, power scheme redevelopments, and latent capacity

- AEMO forecasts Australia will need up to 40 gigawatts (640 GWh) of new energy storage over the next 30 years and Tasmania is ideally suited to supply a share of this at relatively low cost.
- The BotN work program includes potential development of a new pumped hydro site, redevelopment of existing hydro power stations and schemes, and better use of existing hydropower latent capacity.
- Hydro Tasmania has identified Lake Cethana as the number one pumped hydro site and further feasibility work is underway.
- Hydro Tasmania analysis shows that a first pumped hydro site could lead to over \$1.5 billion economic investment and up to 300 jobs across peak construction. Development of pumped hydro would only occur if the second 750MW Marinus Link stage is progressed (currently scheduled for 2031).
- Hydro Tasmania is also looking to redevelop and better utilise the existing hydropower fleet and the business is progressing the early works and upgrade works for a potential redevelopment of the Tarraleah hydropower scheme, supported by recent Tasmanian and Australian Government support.
- A redeveloped Tarraleah hydropower scheme would significantly enhance the station's capacity and increase the available storage. When combined with the first 750MW stage of Marinus Link, a redeveloped Tarraleah hydropower scheme will provide low cost, reliable, and clean energy to the NEM.
- Further power station upgrades on the West Coast scheme are also possible in conjunction with planned renewal works to improve the dispatchable capacity of those assets.
- If the BotN projects are progressed, Hydro generation will remain a key part of the Tasmanian generation mix and will continue to play an important (though not sole) role in providing energy security for the State.
- The BotN 'vision' relies on Project Marinus proceeding and the BotN projects support the business case for Project Marinus. The two projects are interconnected.

Tarraleah hydropower scheme redevelopment work

- Hydro Tasmania is progressing a series of upgrade works and pre-FID work to the Tarraleah hydropower scheme, in preparation for a potential redevelopment of that scheme, which forms a key part of the Hydro Tasmania Battery of the Nation initiative.
- These works have been jointly funded by the Australian Government and by Hydro Tasmania through the FFA Schedule which allocates a further \$123 million of funding to FID.
- The upgrade works include dam upgrades, intake excavations, and development of ancillary support infrastructure. These works are required regardless of whether the Tarraleah redevelopment has a positive FID.
- Other pre-FID works are also progressing, which include progression of technical designs, commencement of early stages procurement processes, and other work necessary to prepare a business case for the redevelopment of the scheme at FID.

Government agreements

Letter of Intent

- On 19 October 2022, the Australian and Tasmanian Government signed a Letter of Intent (LoI) providing further support for Project Marinus and Battery of the Nation projects.
- The arrangements include access to concessional finance through the Rewiring the Nation program for Project Marinus (for the Marinus Link and North West Transmission Development scopes) and up to \$1 billion concessional finance Battery of the Nation initiatives.
- This is a significant development and will assist the business case for the BotN projects by lowering debt costs to Hydro Tasmania.

FFA Schedule

- On 3 April 2022 both Governments signed a new Federal Funding Agreement Schedule (FFA Schedule) titled 'support for Project Marinus and the delivery of Tarraleah Hydro Power Scheme Redevelopment'.
- The new FFA Schedule provides further Government funding to both Project Marinus and Battery of the Nation, with \$123 million provided to the Battery of the Nation Tarraleah redevelopment project including \$65 million from the Australian Government and \$58 million from the State (through Hydro Tasmania).
- The Australian Government funding is subject to completion of several milestones linked to project delivery.
- The first milestone, execution of the FFA Schedule, has been completed, resulting in the payment of \$9.8 million to Hydro Tasmania. The profile of milestone payments, by financial year, is included below.

2021-22 Actual (\$m)	2022-23 Budget (\$m)	2023-24 (\$m)	2024-25 (\$m)	2025-26 (\$m)	2026-27 (\$m)
9.8	13	19.2	23	-	-

Department of State Growth

Budget Estimates Briefing
Minister for Energy and Renewables
Minister for State Development, Construction and Housing



Subject: ENERGY SECURITY
Date prepared: 14 April 2023
Output Group: 7 Renewables, Climate and Future Industries Tasmania
Output: 7 Energy Security

Speaking points

- Tasmania's electricity, gas and liquid fuel security is secure, and is expected to remain so.
- Tasmania's key metric for energy security is the state of Hydro Tasmania's water storages which is monitored under the Energy Security Risk Response Framework.
- As of Monday 8 May 2023 Hydro Tasmania's storages were at 34.1 per cent of Total Energy in Storage
- Measured against the Energy Security Risk Response Framework for May this means that for storages are:
 - 7.2 percentage points above the Prudent Storage Level; and
 - 15.1 percentage points above the High Reliability Level
- The Framework ensures that:
 - above the Prudent Storage Level there is enough water to remain above the High Reliability Level even if there is a historically low three month inflow into the storages.
 - above the High Reliability Level there is enough water in storage to withstand a 6 month Basslink outage.
- The Tasmanian Economic Regulator monitors storage levels and reviews the Framework in line with any major new generation or load changes in the Tasmanian electricity system.
- If storages fall below the Prudent Storage Level, the Economic Regulator may require Hydro Tasmania to develop and implement a storage recovery plan, with the view of avoiding storages falling to, or below, the High Reliability Level.
- The electricity network and gas supplies are monitored by AEMO and by ReCFIT. In relation to liquid fuel supply, this is also monitored by ReCFIT. At this time, electricity transmission, gas and liquid fuel supply are secure and AEMO's winter outlook highlights no expected challenges.

- There has been a lot of media coverage about cyber threats to the Australian community. I am pleased to advise that the electricity sector is well prepared, and responsive to these threats.
- This includes TasNetworks and Hydro Tasmania which are work with Tasmania's own lead agency for cyber at Digital Strategy and Services, and are also partnered with the Australian Cyber Security Centre.
- These businesses, along with businesses from the gas and liquid fuels sectors are included in ReCFIT's energy supply emergency arrangements which include cyber.
- ReCFIT and Tasmania's critical energy businesses are members of the Critical Infrastructure Resilience Forum Tasmania which has been formed to raise the resilience of Tasmania's critical services to all hazards including cyber.

Released under RTI

Background

- Tasmania's energy supply continuity has been maintained with no significant disruptions over the past year.
- Notable events which may be raised in connection with energy security over the past 12 months include:
 - The closure of Berth 4 West in Devonport in the first half of 2022 after the Goliath incident – This prevented liquid fuel delivery to the Viva terminal for around 6 months. Importantly, industry responded very well and used alternative terminals for imports. As a result liquid fuel supplies to customers were not disrupted.
 - The damage to the Palmerston to Waddamana transmission line in October 2022 – The destruction of a transmission tower near Poatina power station as a result of the severe weather event in mid-October physically islanded southern Tasmania from the national electricity grid. Risk to supply continuity and energy management of southern storages were effectively dealt with by AEMO, TasNetworks and Hydro Tasmania – no supply disruptions arose.
 - Price volatility and supply issues in the NEM, which led the market price caps being imposed and the market suspended by AEMO in June 2022. During that period, there were no threats to supply evident in Tasmania.
- Tasmania participates in national emergency exercises in relation to electricity, gas and liquid fuels, and in addition will conduct exercises at the State level, working with industry, on an as-needs basis.

Department of State Growth

Budget Estimates Briefing
Minister for Energy and Renewables
Minister for State Development, Construction and Housing



Subject: **GAS STRATEGY, GAS PRICES AND EAST COAST GAS SUPPLY**
[Note will require updating if Future Gas Strategy is released]

Date prepared: 28 April 2023

Output Group: 7 Renewables, Climate and Future Industries Tasmania

Output: 7.1 Energy and Renewables

Speaking points

- The Government is acting to better understand the future role of gas in Tasmania by developing a Future Gas Strategy. Setting out the Government's vision for the future of gas will assist households, businesses and industry to make sensible decisions about their future energy use.
- There are opportunities to decarbonise Tasmania's gas network and at the same time improve our energy security by reducing reliance on imports from the mainland.
- As part of the Government's commitments under the Tasmanian Renewable Energy Action Plan, gas decarbonisation pathways are being considered as part of the Future Gas Strategy, including options for using locally produced hydrogen, renewable methane or biogas.
- The Government has been working to understand the views of business, households, and the community about the future role of gas in Tasmania. A Discussion Paper was published for consultation in November 2021, followed by the release of a draft Strategy and the final gas strategy will be released this year.
- The Government is also committed to ensuring the supply of secure and affordable energy as Australia's gas markets transition away from fossil fuel gas over the longer term.
- The current challenges facing the east coast gas market are significant and we are working collaboratively with the Commonwealth, other jurisdictions, and with the support of the market operator and regulator, to ensure all Tasmanians continue to have access to reliable and affordable energy.
- The Government has consulted with industry on any potential impacts on Tasmanian gas supply and they do not foresee any risks to Tasmanian customers at this stage. We are however, continuing to closely monitor the situation.

Key Statistics

- Tasmania has approximately 15,000 customers residential and commercial gas customers.

- For residential customers, Aurora Energy and Tas Gas Retail are the two licensed retailers (refer to Table below for current tariffs). Rates for business customers vary, depending on contract arrangements.

Tasmanian Residential Gas Tariffs - as at April 2023

Retailer	Daily Supply Charge	Usage
Tas Gas Retail	61 cents per day	4.606 cents per megajoule
Aurora Energy	61.17 cents per day	5.1915 cents per megajoule

- The gas commodity prices in Tasmania have seen a significant upward trend over the past 10 years.
- In 2022, international events combined with higher gas demand primarily through increased gas-powered electricity generation, has caused a tightness in gas supply and increased domestic spot prices to record levels.
- A temporary price cap on wholesale gas supply contracts was introduced by the Australian Government in late December 2022 and will be in a place for at least 12 months.
- The price cap is set at \$12 per gigajoule which, based on advice from the Australian Competition and Consumer Commission (ACCC), is reasonable and takes into account the key costs of domestic supply, including a reasonable return on capital for gas sourced from developed fields.
- The Australian Government is currently consulting on a mandatory code of conduct for gas suppliers to be introduced late this year which will include reasonable pricing provisions and a proposed extension of the \$12 per gigajoule price cap.
- Most large Tasmanian gas customers have at least some of their gas supply terms fixed under longer-term (1-3 year) contracts and therefore have limited exposure to short-term fluctuations in the gas spot market. However, higher gas prices will, over time, be particularly challenging for major industrial and commercial gas users in Tasmania.

Background

Future Gas Strategy and Decarbonisation Pathway

- The Tasmanian Government is developing a future gas strategy (the Strategy) for Tasmania. By outlining the Government's vision for the future of gas in Tasmania over the next 20 - 30 years, the Strategy is intended to help gas market participants make informed choices and investment decisions at a time when the industry is facing a period of rapid transition.
- The Strategy is being developed in collaboration with a Gas Strategy Working Group, formed in November 2020. The working group includes key industry and consumer representatives.
- The Government has been working to understand the views of businesses, households, and the community about the future role of gas in Tasmania. There have been two phases of public consultation with a Discussion Paper published in November 2021, followed by the release of a draft Strategy in October 2022.
- Submissions were received from a range of stakeholders representing the interests of household, industrial and small business consumers, gas infrastructure providers, environmental groups and investors in emerging renewable industries. The Department is currently considering the feedback and a final gas strategy will be released shortly.

- While Tasmania's gas sector is far smaller than other Australian states, there are significant opportunities to decarbonise our natural gas network. Potential pathways include the use of locally produced hydrogen, renewable (synthetic) methane or the production of biogas.

Tasmanian Gas Prices

- Given Tasmania's gas is imported from Longford, Victoria, our gas price is subject to the price set by the east coast market which has been rising due to a range of domestic and international factors.
- The Government is carefully monitoring the situation as continuing high gas prices will start to be felt by customers as current supply contracts come to an end. This will be particularly challenging for major industrial and commercial gas users in Tasmania.
- There has been competition in gas retail since the market began and there is no barrier for retailers to join the market.
- Retail gas prices in Tasmania have been unregulated since the commencement of the market. Aurora Energy and Tas Gas Retail, the two main natural gas retailers, offer a single residential tariff and a single business tariff.
- On 1 January 2023 TasGas Retail increased its retail gas prices. For residential customers, it increased the supply charge by around 7 per cent and its usage charges by approximately 10 per cent.
- Aurora increased its retail gas prices in April 2023. For residential and small business customers, it increased the supply charge by 7.3 per cent and its usage charges by 24.5 per cent and 23.89 per cent for residential and small business tariffs respectively.
- While rates for larger business customers vary, depending on contract arrangements, the Government understands that these price increases have flowed through to some commercial and industrial customers.

East Coast Gas Supply

- The Australian Energy Market Operator (AEMO) and the ACCC have provided advice that peak day supply shortfalls could arise in the southern states in the winter of 2023 and the risk of seasonal shortfalls is likely to grow without greater certainty about future new supply and infrastructure investment.
- These shortfalls are predominantly caused by declining gas production in southern Australia. While the Tasmanian Gas Pipeline has more than sufficient capacity to transport enough gas to meet Tasmania's needs, there are limitations on the capacity of pipelines on the mainland to transport gas from supply centres in the north (Queensland and the Northern Territory) to the south-east demand centres (where shortfalls are forecast).
- It is not expected that Tasmania will be impacted by peak day shortfalls given Tasmania's load is relatively flat and we do not experience the same peaks as the Victorian and other east-coast markets. However, Tasmania's gas supply could be impacted should the annual supply gaps emerge from 2027.
- In response, Energy Ministers and their governments have taken a series of actions to address the concerns raised and the significant challenges experienced across east coast gas markets over recent months.
- On 12 August 2022 Energy Ministers agreed to a range of gas market reforms, including the development of the urgent regulatory framework to extend AEMO's functions and powers to manage reliability and gas supply adequacy for the east coast gas market.
- The package complements other measures taken to enhance supply adequacy in the east coast gas market, such as the recently announced Heads of Agreement reached between LNG exporters and

the Commonwealth on 29 September 2022 committing, until 2026, to provide uncontracted gas first to the domestic market.

- The Australian Domestic Gas Security Mechanism (ADGSM) has also been reviewed and formally extended to 2030. The ADGSM, sometimes referred to as “the trigger”, works alongside the Heads of Agreement and is an export control mechanism designed to ensure there is a sufficient supply of natural gas to meet forecast demand.

Released under RTI

Department of State Growth

Budget Estimates Briefing
Minister for Energy and Renewables
Minister for State Development, Construction and Housing



Subject: **HYDROGEN INDUSTRY ACTIVATION (INCLUDING HYDROGEN BUS TRIAL)**

Date prepared: 9 May 2023

Output Group: 7 Renewable, Climate and Future Industries Tasmania

Output: 7.1 Energy and Renewables

Speaking points

- The Tasmanian Renewable Hydrogen Action Plan (TRHAP) released in March 2020 sets out our vision and strategy for the development of a renewable hydrogen industry in Tasmania that capitalises on our competitive renewable energy advantages.
- \$2.6 million provided to support three feasibility studies investigating large-scale renewable hydrogen projects in Tasmania:
 - Origin Energy
 - ABEL Energy
 - Grange Resources
- All three projects are now complete, and knowledge sharing reports are on the Renewables, Climate and Future Industries Tasmania (ReCFIT) website.
- Under the TRHAP, ReCFIT undertook a detailed Tasmanian Renewable Hydrogen Industry Activation Study (IAS) to examine the near, medium and longer term opportunities for hydrogen generation and use in Tasmania. The summary report is available on ReCFIT's website.
- The Tasmanian Government has conditionally approved up to \$12.3 million to progress recommendations from the Study, including a trial of two or three hydrogen buses by Metro Tasmania for a period of up to five years.
- The next phase of the industry activation study will be investigations into the feasibility of hydrogen freight trucks and hydrogen marine vessels, with potential demonstrations to follow. Preliminary work to investigate these opportunities is underway, with good engagement and interest from industry.
- The Tasmanian Government has also partnered with the Blue Economy Cooperative Research Centre (BECRC), a joint Australian and Tasmanian Government initiative that will unlock significant private investment from around the globe, headquartered in Launceston.

- The BECRC will deliver an Offshore Renewable Energy Systems Program focused on continuing Tasmania's leadership in the production of low cost, reliable and clean energy – with hydrogen a part of this innovation.
- There are several other domestic hydrogen projects in development in Tasmanian which are primarily focussing on hydrogen production to support hydrogen transport. These projects are at various stages of development and approvals.

Key Statistics

- The Tasmanian Government has announced \$50 million under the Tasmanian Renewable Hydrogen Industry Development Funding (TRHIDF) Program.
- Of the \$50 million overall TRHIDF, \$20 million was budgeted for direct project grants; \$20 for loans; and \$10 in subsidies or other support.
- It was originally intended that \$5 million of the \$20 million project grant funding for the TRHIDF was to be provided by the energy businesses, but this matter remains unresolved.
- A total of over \$17 million has been allocated to date to support hydrogen industry activation in Tasmania. Cabinet originally approved \$12.3 million for industry activation initiatives, which included \$10 million for the hydrogen bus trial and \$2.3 million for heavy and marine transport feasibility studies. However, the funding for the bus trial was revised to \$11.3 million and approved by Cabinet.
- To date no significant expenditure has been incurred on other industry activation initiatives, although the Tasmanian marine industry is seeking for Government to accelerate work in this space.

Jobs/Investment created:

N/A

Unit/Program Budget:

2022-23 Actual	2022-23 Budget	2023-24	2024-25	2025-26	2026-27
\$	\$	\$	\$	\$	\$

Background

Tasmanian Renewable Hydrogen Industry Development Fund

The centrepiece of the Action Plan is the Tasmanian Government's \$50 million Tasmanian Renewable Hydrogen Industry Development Funding (TRHIDF) Program, with \$2.6 million provided to support three feasibility studies investigating large-scale renewable hydrogen projects in Tasmania:

- Origin Energy – a feasibility study investigating development of a large-scale green hydrogen and ammonia plant at Bell Bay with an initial production rate of 420 000 tonnes of green ammonia per annum.
- ABEL Energy – a study examining the feasibility of deploying a nominal 100 MW (megawatt) electrolyser plant to produce green hydrogen and green methanol at Bell Bay for both domestic and export use.
- Grange Resources – exploring the potential to use hydrogen to replace natural gas for industrial heating within their pelletising facility located at Port Latta.

All three projects are now complete, and knowledge sharing reports are on the Renewables, Climate and Future Industries Tasmania (ReCFIT) website.

Tasmanian Renewable Hydrogen Industry Activation Study

Under the TRHAP, ReCFIT undertook a detailed Renewable Hydrogen Industry Activation Study (IAS) in 2021 to examine opportunities for hydrogen generation and use in Tasmania. The summary report is available on ReCFIT's website. The key best value areas recommended for funding were:

- A trial of hydrogen fuel cell buses (The Metro project – see below)
- A hydrogen fuelled freight truck feasibility study and demonstration project
- A feasibility study on marine vessels
- Investigation of use of hydrogen in Antarctica / remote areas.

Following the IAS, the Tasmanian Government conditionally approved up to \$12.3 million to progress recommendations from the Study, including a trial of two or three hydrogen buses by Metro Tasmania for a period of up to five years.

Metro Tasmania Hydrogen Bus Trial

Metro Tasmania in partnership with ReCFIT are undertaking a demonstration project operating three fuel cell electric buses on routes in Hobart and surrounds.

Currently, hydrogen buses and a hydrogen refueler are scheduled to be in operation in early 2024.

Global supply chain issues due to COVID-19 and demand for hydrogen equipment have resulted in significant delays for the supply of the electrolyser and high-profile assets, including buses, refuellers, and storage.

Other domestic hydrogen projects under development: Vessel demonstration project under the Flanders Investment and Trade MOU

The Tasmania-Flanders Memorandum of Understanding (MoU) on Green Hydrogen Cooperation provides the framework for:

- Cooperating on R&D, innovation and sustainable technology development across the entire hydrogen value chain,
- Facilitating industry and business connections,
- Identifying markets and trade opportunities for green hydrogen and locally manufactured products – such as vessels, and
- Developing formal partnerships and off-take agreements with identified partners.

Initial focus has been on around marine shipping and offshore applications, particularly hydrogen-based decarbonisation solutions for small scale vessels and marine refuelling infrastructure.

The overarching goal is to undertake an innovative R&D project to develop a Tasmanian hydrogen powered vessel to demonstrate that hydrogen is an effective and safe alternate fuel source for decarbonised marine transportation.

The objectives for the project are to:

- Establish a collaborative partnership under the MoU to develop a hydrogen vessel concept and gain and share technology and know-how in the process,
- Assess the technical, regulatory and economic feasibility of a hydrogen vessel and dockside refuelling station (potentially multi-purpose), and
- Increase awareness among the Tasmanian maritime industry of the potential application of hydrogen vessels.

ReCFIT has hosted several industry workshops under the umbrella of the MoU to progress this demonstration project and attempt to lay out a framework under which the project can operate.

Other hydrogen related projects in Tasmania

Hydrogen Brighton Project

At up to 10 MW in scale, this project would supply renewables-based hydrogen to Hobart's natural gas market (Tas Gas), along with mobility and industrial applications at Brighton as part of a circular economy project.

Main proponents: Countrywide Hydrogen

Main end-use classification: Focus on gas networks. May include mobility or electricity or industrial applications.

Hydrogen Launceston Airport Project

This project, located in northern Tasmania, is planning to supply renewable hydrogen to the domestic market throughout the north of the State.

Main proponents: Countrywide Hydrogen, Launceston Airport

Main end-use classification: Focus on mobility. May include electricity or gas networks or industrial applications.

Great Southern Project

The project proponent is examining development of a project located in George Town, Tasmania, to produce renewables-based hydrogen to replace diesel in various mobility applications in Tasmania. It also includes a hydrogen refueler.

Main proponents: LINE Hydrogen

Main end use classification: Focus on mobility. May include electricity or gas networks or industrial applications.

HIF Carbon Neutral eFuels facility

The project proponent is developing a synthetic eFuels production facility, using green hydrogen, to be located near the town of Burnie in Tasmania. eFuels can be a direct replacement for liquid fuels.

Main proponents: HIF Global

Main end use classification: Synthetic e-fuel for export

Grange Resources Renewable Hydrogen Study

The project proponent has completed a pre-feasibility study to assess the potential for renewables-based hydrogen to replace natural gas for process heating at a pelletising facility at Port Latta, Tasmania.

Main proponents: Grange Resources (Tasmania)

Main end-use classification: Focus on industrial use for mineral processing

Kedge Marine Hydrogen Ferry Service, Mersey River Devonport

The project is undertaking research to look a suitable commercial operations to convert from an internal combustion engine to a hydrogen fuel cell.

Main proponents: Kedge Marine

Main end-use classification: Transport, Tourism

Whaleback Energy Park

A feasibility study is planned for a proposed (renewables-based) hydrogen project to be located on the west coast of Tasmania.

Main proponents: Westcoast Renewable Energy

Main end-use classification: Focus on industrial use for mineral processing

Department of State Growth

Budget Estimates Briefing
Minister for Energy and Renewables
Minister for State Development, Construction and Housing



Subject: PROJECT MARINUS AND THE NWTD
Date prepared: 5 May 2023
Output Group: 7 Renewables, Climate and Future Industries Tasmania
Output: 7.1 Energy and Renewables

Speaking points

- Tasmania can offer low cost, reliable and clean electricity generation to support the National Electricity Market (NEM) as it transitions away from non-renewable generation sources. But to do that, more interconnection is required.
- Marinus Link and the NWTD (North West Transmission Developments) has been identified as an actionable project in the Australian Energy Market Operator's (AEMO) Final 2022 Integrated System Plan (ISP).
- The Australian and Tasmanian Governments, in coordination with TasNetworks, have partnered together to progress Project Marinus to a Final Investment Decision (FID) which is planned for late 2024.
- On 3 April 2022, the Australian and Tasmanian Governments signed a new Federal Funding Agreement Schedule titled 'Support for Project Marinus and the delivery of Tarraleah Hydro Power Scheme Redevelopment' that provides a further \$150 million funding to progress Project Marinus.
- On 19 October 2022, the Australian and Tasmanian Government signed a Letter of Intent (LoI) providing further support for Project Marinus and Battery of the Nation projects. The LoI provides in-principle commitments to concessional finance, shared ownership, and cost allocation arrangements for the projects.
- These are significant developments and address a range of long-standing questions including 'who will own the asset?', 'how will it be financed?' and, crucially, 'who will pay for the asset?'.
- Project Marinus is expected to place downward pressure on wholesale electricity prices across the NEM and significantly reduce emissions.
- The clean energy it unlocks would be a significant contributor to Australia's emissions reduction ambitions and net zero 2050 target, leading to savings of at least 140 million tonnes of CO₂ by 2050.
- ReCFIT's functions relating to Project Marinus are largely advising the Minister for Energy and Renewables in his capacity as shareholder minister for TasNetworks.

Key Statistics

Jobs/Investment created:

- Project Marinus will create thousands of jobs according to modelling by TasNetworks.
- The Project is expected to provide an initial stimulus through the D&A phase from 2021 to 2024, with an average of 359 direct and indirect jobs sustained.
- A number of these jobs will be regionally based, including planning and survey roles, engineering services, safety, land procurement services, and community and customer engagement.
- The construction phase of Project Marinus is expected to result in up to 1 400 Tasmanian jobs. The Project will also unlock a pipeline of renewable investment, such as wind farm development, that are expected to result in up to 2 350 jobs at the peak of the pipeline delivery.
- Project Marinus and broader renewable energy investment in Tasmania are modelled to deliver up to \$7.1 billion of economic stimulus.

Unit/Program Budget:

- ReCFIT's funding for work related to Project Marinus is sourced from the \$6 million allocated to the state as part of the 2019 Project Agreement for Marinus Link initiative provided by the Commonwealth Government. This funding is forecast to be expired by the end of 2023-24.
- The 2023-24 Budget initiative, Delivering the Renewable Energy Agenda, provides funding to assist in advising the government as Marinus moves towards a Final Investment Decision. However, this initiative is not just for Project Marinus related policy work, but progressing the broader RECF actions, as well as the Marinus and Battery of the Nation Projects and funding to employ the Major Renewable Energy Projects team within ReCFIT for a further year.
- ReCFIT has 0.9 of one FTE dedicated to Project Marinus.

2023-24 Budget Initiative: Delivering the Renewable Energy Agenda

2021-22 Actual	2022-23 Budget	2023-24	2024-25	2025-26	2026-27
\$		\$2,000,000	\$1,750,000	\$	\$

Background

Marinus Link is a proposed 1500MW subsea interconnector, delivered in two 750MW stages between Tasmania and Victoria. According to the national Integrated System Plan (2022), the optimal timing for the commissioning of the first 750MW stage of Marinus Link is from July 2029 and the second stage from July 2031.

The timing of Marinus Link is a function of market need, project approvals, construction phase, and regulatory requirements.

The North West Transmission Developments (NWTD) are the transmission upgrades required to support new renewable energy development in Tasmania. Marinus Link and the NWTD are collectively referred to as Project Marinus.

Project Marinus is currently in the Design and Approvals phase where key project activities such as approvals, technical designs, project costs, procurement processes and others are completed. A Final Investment Decision on the project expected in late 2024. The NWTD is being progressed alongside the Marinus Link work and each project is dependent on the other progressing.

Key tenders for the Marinus Link scope were released in late 2022 and early 2023. The release of tenders is an important milestone for the project and will provide important information on the costs and timeframes for the project.

Government agreements

Letter of Intent

On 19 October 2022, the Australian and Tasmanian Government signed a Letter of Intent (LoI) providing further support for Project Marinus and Battery of the Nation projects.

The LoI provides commitments to concessional finance, ownership, and cost allocation arrangements for the projects.

The arrangements include:

- Access to concessional finance through the Rewiring the Nation (RtN) program for Project Marinus (for the Marinus Link and North West Transmission Development scopes) and up to \$1 billion in concessional finance through the same RtN program for Battery of the Nation initiatives.
- Tasmanian, Victorian, and Australian Government ownership of the Marinus Link scope, with commitments for governments to provide equal equity contributions totalling 20 per cent of construction costs for the Project.
- Agreement for equitable cost sharing arrangements between Tasmania and Victoria for annual Marinus Link scope costs in the operational phase.

These are significant developments and address a range of long-standing questions including 'who will own the asset' 'how will it be financed and, crucially, 'who will pay for the asset & how do we ensure Tasmanian customers pay their fair share?'

The arrangements mean that the annual cost of Project Marinus will be reduced by approximately 50 per cent relative to status quo arrangements based on preliminary estimates. The final annual cost will be dependent on a number of factors including the tender outcomes, interest rates and decisions by the AER.

These arrangements are for the future phases of Project Marinus and Battery of the Nation and the work continues to progress these projects to a Final Investment Decision planned for late 2024.

Energy & Emissions Reduction Agreement MoU

On 15 December 2020 the Australian and Tasmanian Governments signed the Commonwealth-Tasmanian Bilateral Energy and Emissions Reduction Agreement Memorandum of Understanding (MoU) that recognises the value of Tasmania’s renewable energy opportunities.

The MoU was revised on 2 April 2022 with both Governments committing further support to progress Project Marinus to FID. The MoU provides significant commitments from both Governments to take the Project Marinus and Battery of the Nation projects forward.

Federation Funding Agreement Schedule

On 3 April 2022 both Governments signed a new Federal Funding Agreement Schedule (FFA Schedule) titled “Support for Project Marinus and the delivery of Tarraleah Hydro Power Scheme Redevelopment”.

The FFA Schedule provides further Government funding to both Project Marinus and Battery of the Nation, with \$150 million to progress Project Marinus to FID, with equal shares from both the Australian Government and the State.

The total of milestone payments, by financial year, is included in the table below.

2021-22 Actual (\$m)	2022-23 Budget	2023-24	2024-25	2025-26	2026-27
0	35	25	15	-	-

Who pays, how and when?

Marinus Link will be a regulated interconnector with its costs recovered from Victorian and Tasmanian customers over the life of the asset.

Through the Letter of Intent, equitable cost allocation arrangements were agreed between Victoria and Tasmania.

This, combined with concessional finance and lower equity returns to government owners, ensures that Tasmanian customers are provided with a more equitable cost allocation outcome.

The Tasmanian Government has made a commitment for Tasmania to pay no more than 15% of what the project costs would have been had there been no concessional finance (and other arrangements) provided through the Letter of Intent.

The final revenue determination and treatment of concessional finance is a matter for the Australian Energy Regulator to decide on and is a function of the project costs (which will be determined through tender processes), debt rates, return on equity and other revenue building block components that are determined in line with the National Electricity Rules.

Project Marinus construction cost, financing, operational model, & ownership

Project Marinus is estimated by TasNetworks to cost in the order of \$3.8 billion in 2022 dollars, based on the current p50 project cost estimate.

The Marinus Link tender processes commenced in late 2022 and early 2023 and the outcome of these tender processes will reveal more detailed costs to complete the project.

Under the Lol, the Tasmanian, Victorian and Australian governments intend to own the Marinus Link scope and equally share the 20 per cent equity required for construction, subject to a positive FID.

It is intended for the remaining 80 per cent of the construction cost of Marinus Link to be financed through concessional debt from the Australian Government Rewiring the Nation initiative.

Marinus Link is currently being progressed as a regulated transmission asset, which means that its future owners will have access to a secure revenue source from Victorian and Tasmanian customers (via transmission charges) to meet capital and operating costs over the life of the asset.

Department of State Growth

Budget Estimates Briefing
Minister for Energy and Renewables
Minister for State Development, Construction and Housing



Subject: **PROJECT MARINUS AND BOTN – LETTER OF INTENT (OCTOBER 2022)**

Date prepared: 5 May 2023

Output Group: 7 Renewables, Climate and Future Industries Tasmania

Output: 7.1 Energy and Renewables

Speaking points

- On 19 October 2022, the Australian and Tasmanian Government signed a Letter of Intent (LoI) providing further support for Project Marinus and Battery of the Nation projects.
- The LoI provides in-principle commitments to concessional finance, ownership, and cost allocation arrangements for the projects.
- The arrangements include:
 - Access to concessional finance through the Australian Government Rewiring the Nation initiative for Project Marinus (for both the Marinus Link and North West Transmission Development scopes) and up to \$1 billion concessional finance for Battery of the Nation initiatives.
 - Tasmanian, Victorian, and Australian Government ownership of the Marinus Link scope, with commitments for governments to provide equal shares in the 20 per cent equity required for the construction of Marinus Link.
 - The LoI also outlines an agreement for equitable cost sharing arrangements between Tasmania and Victoria for annual Marinus Link scope costs once operational.
- The LoI arrangements are predicted to reduce the Project Marinus costs recovered from customers by up to half, compared to what would have been the case under a status quo outcome.
- The LoI arrangements are for the future construction phases of Project Marinus and Battery of the Nation and the work continues to progress these projects to Final Investment Decisions planned for late 2024.

Key Statistics

Unit/Program Budget: N/A - see the respective Project Marinus and Battery of the Nation estimates briefs for project specific financial figures.

Background

- The Australian, Tasmanian, and Victorian government officials continue to work through the next level of detail for implementing the Lol, with an intent to have a further agreement on the detail of the Lol later in the year.
- The Lol arrangements are intended to support the construction phases for Marinus Link, the NWTD and BotN projects, should they proceed to construction on the basis of a positive FID. Other government agreements are in place to support the development stages of these respective projects (i.e. the pre-FID, Design and Approvals stages) including the FFA Schedule titled 'Support for Project Marinus & the delivery of Tarraleah Hydro Power Scheme Redevelopment'.
- The Lol provides different arrangements for the Marinus Link, North West Transmission Developments, and Battery of the Nation projects, as set out below:

Marinus Link

- Through the Lol, the Tasmanian, Victorian, and Australian governments outlined intentions to collectively own the Marinus Link scope, with commitments for governments to provide equal shares in the 20 per cent equity required for the construction of Marinus Link.
- It is intended for the remaining 80 per cent of the construction cost to be financed through concessional debt from the Australian Government Rewiring the Nation initiative.
- The Lol also outlines an agreement for equitable cost sharing arrangements between Tasmania and Victoria for annual Marinus Link scope costs once operational.
- The Tasmanian Government has made a commitment for Tasmania to pay no more than 15% of what the project costs would have been for Project Marinus had there been no concessional finance (and other arrangements) provided through the Letter of Intent.
- The final revenue determination and treatment of concessional finance is a matter for the Australian Energy Regulator to decide on and is a function of the final project costs, debt rates, return on equity (both of which will need to reflect the agreed concessional arrangements), and other revenue building block components that are determined in accordance with the National Electricity Rules.

NWTD

- Through the Lol the Australian Government intends to provide concessional finance for a significant portion of the NWTD costs.
- As for Marinus Link, this has the intended outcome of reducing the transmission charges (i.e. recoverable revenue) recovered from Tasmanian customers relative to a status quo outcome if no concessional finance was available. That is, the costs are reduced from what they otherwise would have been.
- The NWTD transmission charges will be solely recoverable from Tasmanian customers.

Battery of the Nation

- Through the Lol the Australian Government intends to provide up to \$1 billion concessional finance to support the BotN project construction phase costs.
- The BotN Lol arrangements are intended to reduce the debt servicing costs to Hydro Tasmania relative to a case where the business borrowed from TASCORP to finance the construction of the BotN projects.
- This is effectively a discount in the debt servicing costs for Hydro Tasmania that will result in lower costs to the business and should result in lower cost dispatchable capacity into the NEM.
- This is distinct from the Marinus and NWTD arrangements, which are for regulated transmission assets where project costs are directly recovered from customers by way of transmission charges (which are reflected in customer bills).

Released under RTI

Department of State Growth

Budget Estimates Briefing
Minister for Energy and Renewables
Minister for State Development, Construction and Housing



Subject: **TASMANIAN GREEN HYDROGEN HUB (INCL WATER)**

Date prepared: 27 April 2023

Output Group: 7 Renewables, Climate and Future Industries Tasmania

Output: 7.1 Energy and Renewables

Speaking points

- The Tasmanian Green Hydrogen Hub project has been awarded \$70 million in Commonwealth funding from the Clean Hydrogen Industrial Hubs program included in the 2021-22 Federal Budget. Negotiations with the Commonwealth regarding the Grant Deed are underway.
- We are focussing on implementation planning to bring this project to fruition, including designing appropriate project governance.
- The Tasmanian Government continues to work with its consortium partners TasNetworks, TasPorts, TasIrrigation, TasWater and the Bell Bay Advanced Manufacturing Zone.
- The Tasmanian Green Hydrogen Hub will deliver major benefits to Tasmanian businesses and the economy and support the decarbonisation of a number of sectors such as transport, mineral processing and manufacturing.
- The Hub will deliver major infrastructure upgrades across port, water, and electricity transmission, as well as providing funding for domestic market activation opportunities, and skills and training.
- The submission to the Australian Government had an indicative timeline for the Tasmanian Green Hydrogen Hub project of three and a half years with an estimated total project cost of \$300 million.
- The project will likely be funded through a range of mechanisms including Government Business capital investment, possible State Government funding and proponent contributions.
- The Tasmanian Government has committed \$900,000 over the next three years to provide some project resources to progress the Tasmanian Green Hydrogen Hub at Bell Bay.

Water Supply

- The Tasmanian Government has recently announced its preferred water for hydrogen option is to provide water from TasIrrigation.
- As the next step, we have asked TasIrrigation to undertake a market sounding exercise to assess the demand. This process is now underway.
- Importantly, our preferred water solution for hydrogen production will be sourced in a way that ensures no other water users are negatively impacted.

- The water supply option is being progressed on an assumption that Hydrogen Hub proponents will meet the full commercial cost.

Key Statistics

Jobs/Investment created:

- Analysis completed by GHD on behalf of Renewables, Climate and Future Industries Tasmania (ReCFIT) indicates that development of a 300MW facility would provide economic benefits to the State totalling:
 - \$1.2 billion in direct and indirect investment over the life of the project (first 3.5 years);
 - An average of 740 additional Full Time Equivalent jobs during project development over this period, with a peak in the construction phase; and
 - Longer term, lasting benefits in terms of investment in the State, compounding over time as the industry grows from this initial project establishment.
- The construction of hydrogen projects in Tasmania would provide construction jobs, skills development in the hydrogen industry itself, as well as leveraging value in other industries such as the advanced manufacturing sector.
- The National Hydrogen Strategy outlines that there is strong global demand for green hydrogen, and the need to capture this demand through development of export markets. A Tasmanian Green Hydrogen Hub is an ideal way to tap into this growing market and open international trade channels to the rest of Australia.
- CSIRO estimates that clean hydrogen exports could directly support 16,000 jobs nationally by 2050, plus an additional 13,000 jobs in renewable energy infrastructure construction. Clean hydrogen production for both export and domestic use could generate more than \$50 billion in additional GDP by 2050.

Unit/Program Budget:

2021-22 Actual	2022-23 Budget	2023-24	2024-25	2025-26	2026-27
\$0	\$0	\$300,000	\$300,000	\$300,000	\$0

Background

- The Commonwealth Government's \$70 million commitment to the TGHH was confirmed in the October 2022 Federal Budget. The TGHH has been publicly committed to by State and Commonwealth Governments.
- The TGHH project at Bell Bay will establish the foundation for hydrogen production enablement and form the basis for a future pathway through the provision of open access infrastructure in the areas of electricity, water and ports. With a focus on open access infrastructure, the project will ensure that the delivery is in partnership with both government and industry, enabling key proponents the opportunity for investment and commissioning of green hydrogen plants.
- The 2023-24 Commonwealth Budget announced \$2B Hydrogen Headstart program. This is a new program to provide revenue support for large scale renewable hydrogen projects through competitive hydrogen production contracts. The contracts aim to help bridge the commercial gap for early projects and put Australia on course for up to a gigawatt of electrolyser capacity by 2030, likely via two or three flagship projects.
- This measure may support the development of Tasmania's hydrogen industry and Bell Bay has the opportunity to be one of the large projects.

Released under RTI

Department of State Growth

Budget Estimates Briefing
Minister for Energy and Renewables
Minister for State Development, Construction and Housing



Subject: **TASMANIAN RENEWABLE ENERGY ACTION PLAN**

Date prepared: 27 April 2023

Output Group: 7 Renewables, Climate and Future Industries Tasmania

Output: 7.1 Energy and Renewables

Speaking points

- The Government published the Tasmanian Renewable Energy Action Plan (TREAP) in December 2020, after significant consultation.
- The TREAP sets out three key priorities:
 - Transforming Tasmania into a Global Renewable Energy Powerhouse;
 - Making energy work for the Tasmanian community;
 - Growing the economy and providing jobs.
- The 25 actions under those priorities provide a platform to transform Tasmania into a world leading provider of clean, reliable energy.
- Implementation of the TREAP is now well underway, some key achievements being:
 - We have legislated our 200 percent Tasmanian Renewable Energy Target;
 - We continue to progress national scale projects such as Marinus Link and Battery of the Nation;
 - We are also driving ahead with our \$50 million renewable hydrogen development package.
- These and other actions in the TREAP will deliver the Government's vision of using our renewable energy to create jobs, drive investment and help our environment.
- In his State of the State address, the Premier announced that we will soon be releasing an update to the TREAP, *Powered by Tasmania*, focussed on accelerating renewable energy developments.

Background

- The TREAP sets out three key priorities, with key targets associated with the priorities.

Priority 1: Transforming Tasmania into a Global Renewable Energy Powerhouse

Priority 1 Targets

- In November 2020, Tasmania achieved its status of being 100 per cent self-sufficient in renewable electricity generation capacity.
- By 2040 we will double our renewable electricity generation with a target set of 200 per cent of our baseline of 10,500 GWh per year.
- From 2030, our aim is for Tasmania to be a significant exporter of renewable hydrogen.

Key Achievements under Priority 1

- Hydrogen
 - In October 2022, the Tasmanian Green Hydrogen Hub project was announced as a successful recipient of \$70 million in Commonwealth funding from the Clean Hydrogen Industrial Hubs program. Negotiations with the Australian Government regarding the Grant Deed are underway.
 - In 2021, the Tasmanian Government undertook a study into the best path to initiate a self-sustaining hydrogen industry in Tasmania. The Industry Activation Study (IAS) identified near and medium-term opportunities that could be used as technology demonstration trials. The key near-term opportunity was in the heavy vehicle segment which includes buses and trucks.
 - The Government has conditionally approved up to \$12.3 million from its Tasmanian Renewable Hydrogen Industry Development Fund to progress recommendations from the IAS, including a trial of at least two hydrogen buses by Metro Tasmania.
 - The Tasmanian Government has partnered with the Blue Economy Cooperative Research Centre, a joint Australian and Tasmanian Government initiative, headquartered in Launceston, that will unlock significant private investment from around the globe.
- Develop a Tasmanian policy framework to coordinate the renewable energy growth required to achieve the Tasmanian Renewable Energy Target (Action 1.4)
 - The Renewable Energy Coordination Framework (RECF) was published in April 2022. The RECF is designed around four key sustainability pillars to support the successful delivery of more large-scale renewables in Tasmania. The actions under the RECF will seek to build community support, optimise the location of generation and transmission infrastructure and support employment and local community benefits.
 - In December 2022, the Government announced that North-West Tasmania will be the first region to be explored in detail for its potential to host the State's first Renewable Energy Zone.
- Community consultation on an ambitious Net Zero Emissions Target (Action 1.6)
 - Consultation for the review of the *Climate Change (State Action) Act 2008* was completed in June 2021. Tasmania has now legislated a target to achieve net zero emissions, or lower, from 2030. The *Climate Change (State Action) Amendment Bill 2021* was enacted in November 2022.

Priority 2: Making energy work for the Tasmanian community

Priority 2 Targets

- Ensure regulated electricity prices remain affordable with the target to achieve the lowest regulated electricity prices in the National Electricity Market (NEM) by 2022.
- Maintain and further strengthen Tasmania's energy security framework.
- Ensure Tasmanian customers have the tools and information required to manage their electricity use, lower bills and access new products and services.

Key Achievements under Priority 2

- Deliver lowest electricity prices in the NEM
 - In October 2022, the independent Tasmanian Economic Regulator released its Comparison of Electricity and Gas Prices Available to Small Customers in Australia. This report confirms that Tasmania has the lowest, or among the lowest, regulated electricity prices in Australia. The key findings of the regulator's report were:
 - The annual electricity charge under Aurora Energy's regulated time of use tariff is the lowest compared to equivalent regulated tariffs in all jurisdictions.
 - The annual charges under Aurora Energy's regulated general usage and heating tariffs are among the lowest of equivalent regulated tariffs in all mainland jurisdictions.
 - For average business customers, Aurora Energy's regulated tariff is the lowest compared to the charges under regulated tariffs in all mainland jurisdictions.
 - The Government continues to monitor emerging pricing outcomes and has introduced support initiatives such as the Winter Energy Assistance Package to assist Tasmanians to manage higher prices. The Government will continue to monitor cost of living pressures and stands ready to respond with further measures if required.
- Continue support for energy efficiency programs (Action 2.6)
 - In response to rising energy costs, the Tasmanian Government has expanded its Energy Saver Loans Scheme to \$50 million. The scheme provides interest free loans of between \$500 and \$10,000 over 3 years to private residential customers, small business customers and landlords of residential rental properties to invest in energy efficient products to help lower their electricity bills.
 - The Tasmanian Government is providing \$2 million in support for the No Interest Loans Scheme. This scheme assists concession-holders with subsidies of up to 50 per cent toward the cost of energy efficient appliances, with a no-interest loan for the balance.
 - In its 2021-22 Budget, the Government allocated \$15 million for public housing heating and energy efficiency initiatives.

Priority 3: Growing the economy and providing jobs

Priority 3 Targets

- Grow Tasmania's renewable energy "brand" nationally and globally.
- Attract new load and energy intensive industries to Tasmania.
- Create thousands of new jobs and realise billions of new investment in the renewables sector

Key Achievements under Priority 3

- Rollout of the Energising Tasmania skills and training initiative (Action 3.4)
 - The \$16.1 million Energising Tasmania fund has been an effective mechanism for collaboration in the industry and has brought together key players to help shape energy workforce priorities.
 - The Government is continuing to work with industry to ensure high levels of support for current and emerging training needs for the Tasmanian energy sector.
- Maximise local Tasmanian business and employment opportunities for renewable energy (Action 3.5)
 - The Renewable Energy Coordination Framework (RECF), which was released in April 2022, includes actions to maximise opportunities for Tasmanian workers and local businesses to supply goods and services for renewable energy projects. As a direct action under the RECF,

the Government has developed a draft Guideline for Community Engagement, Benefit Sharing and Local Procurement. The purpose of the Guideline is to set a clear standard for best practice community engagement, benefit sharing and local procurement for renewable energy development in Tasmania. The final Guideline is expected to be released in June 2023.

Updated TREAP (not yet released)

- The updated plan, Powered by Tasmania, will bring together and build upon both the TREAP and the Tasmanian Renewable Hydrogen Action Plan, which were originally released in 2020.
- Powered by Tasmania, which is expected to be released in June 2023, will re-affirm the strategy to boost Tasmania's renewable electricity generation to ensure that Tasmania is able to meet its growing energy needs while maintaining its 100 per cent renewable status.

Released under RTI

Department of State Growth

Budget Estimates Briefing
Minister for Energy and Renewables
Minister for State Development, Construction and Housing



Subject: **TASMANIAN RENEWABLES ENERGY TARGET (INCL. PIPELINE STATUS, SUPPLY/DEMAND BALANCE, PULL THROUGH MECHANISMS, RECF IMPLEMENTATION)**

Date prepared: 3 May 2023

Output Group: 7 Renewables, Climate and Future Industries Tasmania

Output: 7.1 Energy and Renewables

Speaking points

- The Tasmanian Renewable Energy Target (TRET) will increase the state's renewable energy output equivalent to 200 per cent of 2022 renewable electricity generation levels.
- This means that by 2040 Tasmania will produce twice as much renewable electricity as it will be generating in 2022.
- To facilitate the electricity infrastructure required to support this transformation, the Government has developed the Renewable Energy Coordination Framework (RECF), a policy framework for guiding renewable energy development.
- The RECF aims to deliver a least cost build out of new renewable energy development for customers, taking into consideration important values such as land use, heritage, environment and tourism to provide guidance as to the best places to locate.
- A key action under the RECF is the investigation of market mechanism to support achievement of the TRET. While we have a competitive advantage in renewable energy, some form of support mechanism may be required.
- Tasmania is in the enviable position of being able to meet 100% (on average) of its electricity needs from renewable sources. However, based on load growth predictions, new renewable generation will be required to ensure this position is maintained.
- Cambridge Economic Policy Associates have been engaged by ReCFIT to review Tasmania's energy balance through to the end of the decade, the potential need to accelerate new renewable electricity generation to deal with any shortfall and the mechanisms that could be utilised if an acceleration is required.
- There is significant interest in renewable energy in Tasmania as shown by the 7GW of potential generation projects aiming to be operational by 2030 that were identified.
- ReCFIT's key functions regarding the delivery of the TRET are captured in the actions set out under the RECF.

Unit/Program Budget:

- Funding has been allocated in both this year and last year's Budget to implement the RECF actions, including those associated with aiding delivery of the TRET.
- In 2022-23 a consultancy has been awarded to undertake an electricity demand balance forecast out to the end of the decade and review of mechanism options to accelerate new generation if needed.
- The 2023-24 allocation provides funding not just for TRET related policy work, but progressing the broader RECF actions, as well as the Marinus and Battery of the Nation Projects and funding to employ the Major Renewable Energy Projects team within ReCFIT for a further year.

2023-24 Budget Initiative: Delivering the Renewable Energy Agenda

2021-22 Actual	2022-23 Budget	2023-24	2024-25	2025-26	2026-27
\$		\$2,000,000	\$1,750,000	\$	\$

2022-23 Budget Initiative: Renewable Energy Coordination Framework

2021-22 Actual	2022-23 Budget	2023-24	2024-25	2025-26	2026-27
\$	\$400,000	\$400,000	\$	\$	\$

Released Under RIT

Background

Tasmanian Renewable Energy Target

- Legislation of the TRET of 200 per cent of our 2020 baseline of 10,500 GWh of renewable electricity generation by 2040, was passed by the Tasmanian Parliament in November 2020.
- The TRET will be enabled by greater interconnection through Project Marinus, and on-island load growth such as our developing hydrogen industry.
- Significant new renewable energy generation, over 2 500GW of new wind generation, is required to achieve the

Renewable Energy Coordination Framework (RECF)

- The draft RECF was released for public consultation in early 2021, and 31 submissions were received.
- The final RECF was released in April 2022 and it sets out actions to plan and coordinate renewable energy growth enabled through Project Marinus and necessary to meet the Government's renewable objectives (such as the Tasmanian Renewable Energy Target (TRET) and a Renewable Hydrogen Industry).
- The RECF's purpose is to:
 - provide a greater role for Government in strategic planning and coordination of the optimal location and timing of renewable energy generation, transmission, and load
 - support Tasmanian jobs and local industry opportunities
 - ensure that social licence and community impacts are addressed, including best practice community engagement
 - ensure that the right signals are in place that encourages investment in affordable low emissions technologies but ensures costs to consumers and taxpayers are minimised
 - provide sustainable growth, both environmentally and socially, that protects important community values and ensures that communities receive ongoing benefits from this growth
 - ensure regulatory arrangements that are consistent, transparent, and fit for purpose.

Pipeline of projects

- A key action under the RECF conducted in 2022 was a Register of Interest process.
- This identified significant commercial interest in renewables in Tasmania, including:
 - 28GW of renewable energy generation projects, with more than 7GW of that aiming to have commenced operation by the end of 2030.
 - storage projects totalling 2.6GW.
 - load projects of 4.7GW.

Supply/demand balance

- In 2020, Tasmania achieved 100% net self-sufficiency in renewable energy generation
- Based on energy market operators forecasts, the Tasmanian load growth is expected to increase by almost 10% over the next 5 years. This forecast does not include growth from any new industries such as data centres, hydrogen and green manufacturing.
- If sizeable load growth occurs, the Government's current 100% renewable self-sufficiency status may therefore be impacted.

Pull through mechanism

- Under the RECF, consideration is being given to whether there is a need to introduce pull through mechanisms to support new renewable generation projects.
- This will consider the options available to accelerate new generation to meet the Government's renewable energy objectives, particularly in the short term, and provide more confidence to private sector load proponents of a future renewable generation pathway.
- ReCFIT have engaged Cambridge Economic Policy Associates to review the potential need for pull through mechanisms in Tasmania, the potential options available for such mechanisms and provide advice prospective mechanisms to support the Government's renewable energy objectives.

Released under RTI

Department of State Growth

Budget Estimates Briefing
Minister for Energy and Renewables
Minister for State Development, Construction and Housing



Subject: **WIND FARMS (INCL. DEVELOPMENT PIPELINE STATUS, ROBBINS ISLAND AND ASSESSMENT AND APPROVALS REVIEW)**

Date prepared: 3 May 2023

Output Group: 7 Renewables, Climate and Future Industries Tasmania

Output: 7.1 Energy and Renewables

Speaking points

- As identified by the Australian Energy Market Operator, wind resources in Tasmania are amongst the highest quality in the National Electricity Market.
- Tasmania currently generates around 17 per cent of its total energy needs from wind and we expect that wind energy will play an even bigger role as we seek to deliver Tasmanian Renewable Energy Targets.
- There is significant interest in renewable energy in Tasmania as identified in the Register of Interest process conducted in 2022 – with up to 7GW of potential generation projects aiming to be operational by 2030.
- To facilitate the electricity infrastructure required to support this transformation, the Government has developed the Renewable Energy Coordination Framework (RECF), a policy framework for guiding renewable energy development.
- As part of the Framework's implementation actions an Assessment and Approval Processes Review is underway to identify opportunities for coordination, best practice community engagement and benefit sharing for major renewable energy development in Tasmania.
- The RECF also seeks to establish a first Renewable Energy Zone (REZ) in the state. REZ are areas where new generation (wind farms in particular) can be established at scale so as to minimise transmission build, but which must consider important environmental and social values before geographic locations can be determined.
- We are also considering the need to accelerate new generation to meet the Government's renewable energy objectives, particularly in the short term, and provide more confidence of a future renewable generation pathway.

- More renewables in Tasmania will continue to ensure our energy independence in the face of a growing economy and population – there is not a “do nothing” when it comes to new electricity generation in the State in the medium term.
- ReCFIT’s role in delivering the policy environment to enable new wind energy is defined by the actions under the RECF and is funded partly by the 2023-24 Budget’s *Delivering the Renewable Energy Agenda* initiative and the 2022-23 *Renewable Energy Coordination Framework* initiative.

Key Statistics

Current Generation Mix and Tasmanian Renewable Energy Target

- In the 2021-22 reporting period, around 1743GWh of our renewable electricity came from wind, with a further 9560GWh from hydro, and 138GWh from distributed generation such as solar.
- Legislation of the world-leading TRET, an aim to double our 2020 baseline of 10,500 GWh of renewable electricity generation by 2040 through renewable sources, was passed by the Tasmanian Parliament in November 2020.
- The TRET will be enabled by greater interconnection through Project Marinus, and on-island load growth, such as our developing hydrogen industry.
- Significant new renewable energy generation, equating to over 2 500MW of new wind generation, is required to achieve the TRET.

Wind Farm Pipeline

- In 2022, ReCFIT ran a Register of Interest (ROI) process, from which 24 generation projects submitted. The overwhelming majority of these were windfarm developments.
- The potential generation identified through the ROI is significantly more than the 2,500-3,000MW of wind that would achieve the TRET.
- A total of 28,349 MW of potential wind capacity was identified with more than half of the identified wind capacity (14,800 MW) from offshore developments.

Jobs/Investment created:

- There is already significant activity in the feasibility and development approvals phases of wind farm projects in the state, with many proponents having permanent Tasmanian staffing. Local consultants are also being significantly utilised across electricity system modelling and connection, environmental and land use approval, engagement and project management components.
- Casting forward to the construction phase of these projects and those associated with the Marinus and Battery of the Nation initiatives, Energising Tasmania funding is injecting a \$16.143 million to develop a highly skilled and valued workforce that will support the delivery of the Tasmanian pipeline.
- The Tasmanian Energy Industry Workforce Development Plan 2020 to 2027 outlines the skills, training and employment needs that sit across major energy projects in the next 1-7 years.
- Over the period to 2027 for all infrastructure work, there are an anticipated 838 apprenticeships 1,317 paraprofessionals and 297 managerial roles required.

Unit/Program Budget:

- Funding has been allocated in both this year and last year's Budget to implement the RECF actions, including those associated with providing the policy environment to enable new wind farms.
- In 2022-23 expenditure included an award of a consultancy to review assessment and approvals processes related to renewable energy project approvals and award of a consultancy to undertake an assessment of the case for intervention to bring on new generation and a review of mechanism options to deliver this if needed.
- The 2023-24 allocation covers not just wind related policy development, but progressing the broader RECF actions, as well as the Marinus and Battery of the Nation Projects and funding to employ the Major Renewable Energy Projects team within ReCFIT for a further year.

2023-24 Budget Initiative: Delivering the Renewable Energy Agenda

2021-22 Actual	2022-23 Budget	2023-24	2024-25	2025-26	2026-27
\$		\$2,000,000	\$1,750,000	\$	\$

2022-23 Budget Initiative: Renewable Energy Coordination Framework

2021-22 Actual	2022-23 Budget	2023-24	2024-25	2025-26	2026-27
\$	\$400,000	\$400,000	\$	\$	\$

Background

Wind Farm Pipeline

- Of the potential REZ areas, the north-west region has the highest number of proposed projects and potential installed capacity, followed by the north-east and the central region
- ROI data has been released at an aggregated level to de-identify individual projects, but the following represents the likely timing of projects, based on proponent responses.

Near term projects

- The potential near term wind projects totalling 117MW, which either have approvals (or in process) and do not require substantive transmission upgrades, include:
 - Low Head Wind Farm (42 MW), owned by Equis and is scheduled to commence construction at the end of this year (2023).
 - Port Latta Wind Farm (25 MW), owned by Aquila Capital, continues to seek a power purchase agreement to help it reach financial close.
 - Western Plains Wind Farm (50 MW), owned by Ark Energy, located at Stanley is seeking consent to lodge development application from the Circular Head Council (in its capacity as landowner of road easements required for underground transmission line from the farm to the Port Latta substation).
- The next earliest new wind developments, totalling 2,340 MW of new wind generation, are scheduled for the second half of 2026 and include:
 - stage 1 of the proposed Robbins Island and Jims Plain developments (540MW) – the approval of which is under appeal to the Tasmanian Civil and Administrative Tribunal (TasCAT) by the proponent ACEN, Bob Brown Foundation and Circular Head Coastal Awareness Network
 - St Patrick Plains Wind Farm (300MW)
 - first stage of the Bass Offshore Wind Energy development off the north-east coast of Tasmania (1,500MW).
- The next tranche of significant proposed wind generation is scheduled in 2028, comprising:
 - first stage of the North East Wind development at Rushy Lagoon (400MW) – which recently gained approval to proceed through the Major Projects process under the Land Use Planning and Approvals Act 1993 (LUPAA),
 - Cellars Hill Wind Farm (350MW) and
 - Guildford Wind Farm (450MW).
- The next group of developments are timed to coincide with Marinus Link in 2029 include:
 - second stage (400MW) of the North East Wind development
 - Woolnorth repowering (150MW)
 - Hellyer Wind Farm (300MW).
- Future wind projects in 2030 and beyond which require either Marinus or significant load, include:
 - stage 2 of the Bass Offshore Wind Energy in the north-east (1,500MW),
 - stage 1 of the Bass Offshore Wind Energy development in the north-west (1,500MW)
 - stage 1 of the Kings Rocks Offshore Wind Farm (1,500MW)

- stage I of the Stoney Head Offshore Wind Farm (1,500MW).T
- final stages of the Robbins Island and Jim Plains development (460MW)

Other enablers of more wind

- While to date projects have been proponent led, it has been observed that almost all projects have been proposed in locations which, for one reason or another, raise concerns for the project's social license.
- This aspect requires Government to play a greater role to ensure that new generation development is coordinated and engagement with impacted communities and stakeholders occurs early and through appropriate avenues.
- Government's involvement is being progressed by ReCFIT through addressing actions in the Renewable Energy Coordination Framework and in particular the consultation underway within the North West to identify a first Renewable Energy Zone in the State.
- ReCFIT is also currently reviewing existing assessment and approvals processes for renewables projects to understand whether these frameworks need any amendment to accommodate growth at the scale and pace envisaged.
- The draft Guidelines for Community Engagement, Benefit Sharing and Local Procurement seek to set clear expectations for proponents in their dealings with communities and stakeholders and these will soon be finalised, with training for industry planned.
- Renewable energy projects progressed in parallel to these initiatives, will continue to be assessed under our existing approval frameworks by independent regulators.
- The recent decision on Robbins Island and its appeal to TasCAT is an illustration of this process.

Robbins Island

- ACEN Australia have proposed a renewable energy development on Robbins Island of up to 122 wind turbines and associated infrastructure on the island and mainland Tasmania.
- In December 2022 the EPA Board released its Environmental Assessment Report of the Robbins Island Renewable Energy Park which approved the project subject to a number of consideration,
- Conditions for the protection of Orange-bellied Parrot (OBP) habitat across Robbins Island enforce the shutdown of wind turbines for the duration of the OBP's northerly and southerly migration (approximately 5 months of each year).
- In February 2023, Circular Head Council voted to approve the Development Permit for the project with the permit inclusive of the EPA conditions.
- About 400 representations were received on the proposal.
- Council voted five-to-one in favour of ACEN's proposal (Three other councillors could not vote and contribute to the debate after declaring conflicts of interest) with about 100 community members in attendance.
- Three appeals have been lodged against the decision to the Tasmanian Civil and Administrative Tribunal from the proponent, ACEN, and representors opposing the decision, the Bob Brown Foundation and Circular Head Coastal Awareness Network Inc.
- The Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) has not yet made a determination on approval of the project under the *Australian Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Released under RTI

Department of State Growth

Budget Estimates Briefing
Minister for Small Business
Minister for Science and Technology
Minister for Advanced Manufacturing and Defence Industries



Subject: **OUTPUT OVERVIEW**
Date prepared: 1 May 2023
Output Group: 1 Industry and Business Growth
Output: 1.2 Industry and Business Development

Speaking points

- Science and technology are key pillars of our economy and quality of life.
- The Tasmanian science and technology sectors employ approximately 8,000 people and contributes over \$1 billion in gross state product.
- For Tasmanian jobs, health and security, we need our local science and technology sectors to continue to grow and be globally competitive, while enabling small businesses and the broader community to be responsive to, and benefit from, technological change and disruption.
- The Tasmanian Government is continuing to work with our stakeholders to:
 - invest in digital and science-research infrastructure
 - promote the development of Tasmania's information and communications technology (ICT) sector
 - support the growth of emerging industries, such as space
 - enable the digital transformation of small business
 - engage Tasmanians in science, technology, engineering and mathematics (STEM) skills and careers.

Digital Infrastructure

- The Tasmanian Government is taking an active role, working with telecommunication carriers and the Australian Government to improve Tasmania's digital infrastructure as a priority, as per its commitment under Recommendation 33 of the Premier's Economic and Social Recovery Committee Final Report.
- Over recent years, key investments made in this area include \$3.5 million for the Tasmanian Government's own Great Eastern Drive Mobile Coverage Project, over \$2.2 million for the Australian Government's Regional Connectivity Program and some \$862,000 for the Australian Government's Mobile Black Spot Program.
- To support added protection against digital disruption, we are investing \$1.5 million to identify additional subsea digital cabling opportunities across Bass Strait.

ICT Sector Development

- The Tasmanian Government continues to work closely with ICT sector stakeholders to identify current and future needs, address workforce development issues, identify cross-sectoral opportunities, and promote the industry at a national and international level.
- The government remains committed to hosting bi-annual ICT industry summits to provide an opportunity for deeper engagement with the sector to identify current needs and future opportunities. The two summits held in 2022 focused on the results of the Tasmanian ICT Sector Scan and the major strategic projects that are part of the Government's Digital Transformation agenda.

Space Sector Development

- The government has so far committed over \$900,000 to initiatives aimed at strengthening Tasmania's space research infrastructure and accelerating the growth of a commercial space industry.
- This includes \$500,000 for the Tasmanian Space Technology Seed fund which aims to encourage Tasmania's technology companies and entrepreneurs to explore and develop opportunities in the rapidly growing space economy.

- The government is working closely with major international players and key stakeholders such as Collins Aerospace, Hensoldt and the University of Tasmania (UTAS), to develop Tasmania's unique capabilities in space domain awareness and space human life sciences.

Science research

- The government is a major contributor to science research infrastructure such as the Integrated Marine Observing System, the Southern Ocean Observing System, Blue Economy CRC and Royal Hobart Hospital's Hypo/Hyperbaric Chamber.
- Our partnership with the UTAS delivers applied science research outcomes in fisheries, aquaculture, agriculture and health through the Institute of Marine and Antarctic Studies, the Tasmanian Institute of Agriculture and the Menzies Institute for Medical Research.
- The Tasmanian Government is actively promoting the growth of the science (and technology) sector through State Growth's participation in national forums as well as various industry development and Trade promotion initiatives.

Digital capability

- The Digital Ready for Business program continues to improve the digital capability, literacy and confidence of small businesses by empowering them to make better digital economy decisions.
- The program has assisted over 10,000 Tasmanian small businesses grow and streamline their operations, improve their efficiency, operate more securely, identify new opportunities, expand their market and reach new customers.

STEM engagement

- Engaging all Tasmanians in STEM skills and careers continues to be a key priority for the Tasmanian Government.
- The government is a major supporter of local community STEM engagement and outreach programs, including Inspiring Australia's annual National Science Week and Science Meets Parliament events that are held in August, as well as the government's annual STEM Excellence Awards held in November.

Released under RTI

Department of State Growth

Budget Estimates Briefing
Minister for Small Business
Minister for Science and Technology
Minister for Advanced Manufacturing and Defence Industries



Subject: ICT SECTOR
Date prepared: 1 May 2023
Output Group: 1 Industry and Business Growth
Output: 1.2 Industry and Business Development

Speaking points

- The ICT sector is an essential enabler of modern business and service delivery.
- Digital transformation, remote work, e-commerce, cyber security, and privacy have become critical elements of a modern economy.
- The Tasmanian Government works closely with ICT sector stakeholders to identify current and future needs, address workforce development issues, identify cross-sectoral opportunities, and promote the industry at a national and international level.
- Future workforce development issues will be progressed via the ICT Sector Industry Compact, as committed under the Premier's Economic and Social Recovery Advisory Council Final Report released in March 2021.
- The responsibility for these policy outcomes sits under the Skills, Training and Workforce Growth portfolio.

ICT Sector Summits

- The government remains committed to hosting bi-annual ICT industry summits to provide an opportunity for deeper engagement with the sector to identify current needs and future opportunities.
- The two summits held in 2022 focused on the results of the Tasmanian ICT Sector Scan and the major strategic projects that are part of the Government's Digital Transformation agenda.

Last updated: 6 June 2023

- Both summits received overwhelmingly positive feedback from the sector, and plans are underway to deliver sessions in 2023 that highlight additional opportunities.
- The Summits are funded via the Department of State Growth's Space, Science and Technology unit's operational funding.

Project Springboard

- Based on the success of TasICT's Project Springboard trial, in March 2021 the government confirmed an additional \$100,000 to expand the digital skills and mentoring 'pathway to employment' program.
- The program will place selected participants as interns with Tasmanian ICT companies.
- The program will also include a mentoring program which will provide Tasmanian ICT sector leaders with the opportunity to extend their mentoring skills and help empower the emerging ICT workforce.
- TasICT and the department are collaborating to finalise the scope for the next iteration of the program.
- It was great to be a part of TasICT's 25 year celebration of operating in April. TasICT remain a strong advocate for the sector and a key partner for the Tasmanian Government in supporting the sector.

ICT Sector Capability Scan

- In February 2022 Deloitte Access Economics undertook a capability scan of the Tasmanian ICT Sector on behalf of the Tasmanian Government.
- This survey was the first of its kind in over a decade.
- The Sector Scan confirmed that local ICT companies have expertise in a wide range of capabilities including systems development, programming and software development, data and analytics, systems integration, and cyber security.
- Two in five (40 per cent) of Tasmanian technology businesses have been operating for more than 20 years, such impressive longevity reflects that they continue to respond to the needs of their customers.
- The government is committed to encouraging the growth in the ICT sector by:

- Supporting Tasmanian ICT businesses to be export ready through our Trade Strategy programs
 - Increasing access to new national and international markets through our Trade Advocates
 - Facilitating the ICT Sector Summits twice each year, to provide the opportunity for representatives of the local industry and the private sector to engage with the Minister and senior government officials.
- Actions arising out of the Sector Scan have been funded via the department's Space, Science and Technology operating funding.

Future workforce development and skills

- Under the Skills, Training and Workforce Growth portfolio, an Industry Compact will be developed with the ICT sector to continue to grow the sector, including:
 - Advising on current and future industry-wide training requirements and education pathways
 - Better promoting the availability, attractiveness, and benefits of digital jobs and promote the range of careers in the ICT sector.

Key Statistics*

ICT industry

- The ICT industry includes a wide range of businesses involved in Telecommunications, Internet Service Providers and Data Centres, Computer System Design and related services.
- The industry directly employs approximately 4,000 people in Tasmania.
- The industry contributes \$728 million to Gross State Product.

Tasmania's Technology workforce

- Tasmania's technology workforce, across all sectors, stands at 9,600, which comprises 3.7 per cent of Tasmania's workforce.
- The State's technology workforce grew 14.5 per cent last year and growth is expected to be 4.7 per cent over the next five years which is on par with the national average.
- It is projected that the Tasmanian technology workforce will comprise just over 12,000 workers by 2025.
- Nationally just 29 per cent of the technology workforce are women.

*Source: National Institute of Economic and Industry Research and Economy.ID (2020/21) and Tasmanian Technology Sector Scan (2022)

Unit/Program Budget:

- Project Springboard

2022-23 Budget	2022-23 Actual	2023-24	2024-25	2025-26	2026-27
\$	\$	\$ 100,000	\$	\$	\$

* Implementation of the Springboard program has been delayed so funding will be rolled over to 2023-24.

- Sector engagement activities are funded via the department's Space, Science and Technology operating funding.

Background**Incoming Australian Government election commitments:**

- \$1.2 billion *Future Made in Australia Skills Plan* which will focus on closing the skills gap in key areas of shortages (including digital skills and cyber security) with new places at university and TAFE.

ICT Sector Workforce Action Plan 2020-23

- The Tasmanian ICT Workforce Action Plan 2020-2023 ("the Action Plan") was developed by a working group representing key industry, education and government organisations and was launched on 20 December 2019.
- The Action Plan identified 10 strategic priorities with 28 actions that have been addressed by a range of collaborative actions and partnered initiatives until 30 June 2023.
- These actions and initiatives did not require the government's funding.
- The Advisory Committee was appointed to oversee activity to deliver on the priority areas and includes representation from TasICT, the ACS Tasmanian branch, TasTAFE, the University of Tasmania, and the Departments of Education, Premier and Cabinet and State Growth.
- The timeframe for the report concludes in June 2023 and a final report will be released shortly thereafter.

Department of State Growth

Budget Estimates Briefing
Minister for Small Business
Minister for Science and Technology
Minister for Advanced Manufacturing and Defence Industries



Subject: SCIENCE SECTOR
Date prepared: 1 May 2023
Output Group: 1 Industry and Business Growth
Output: 1.2 Industry and Business Development

Speaking points

- Tasmania's science sector is a key contributor to our strong economy.
- The sector employs approximately 4,000 people and contributes over \$300 million to the gross state product.
- The sector is endowed with world-class infrastructure and globally recognised expertise in a range of important scientific disciplines including marine science, food safety, microbiology, population genetics, astronomy, geophysics and climate science, to name a few.
- The Tasmanian Government sponsors and conducts science research across several agencies to inform policy development and implementation in a wide range of areas including the following:
 - Biosecurity
 - Environmental management and conservation
 - Health care and community wellbeing
 - Management of Tasmania's botanical collections
 - Mineral resource management
 - Space domain awareness and extreme environment medicine
 - Sustainable agriculture
 - Water management

- Wildlife health and marine conservation.
- Whilst the relevant minister is responsible for specific portfolio areas, key government policies in relation to Climate Change, Renewable Energy, and the Antarctic Gateway Strategy are informed by relevant scientific research.
- For example, our partnership with the University of Tasmania delivers applied science research outcomes in fisheries, aquaculture, agriculture and health through the Institute of Marine and Antarctic Studies, the Tasmanian Institute of Agriculture and the Menzies Institute for Medical Research.
- The Tasmanian Government is actively promoting the growth of the science sector through the Department of State Growth's participation in national forums as well as various industry development and trade promotion initiatives.
- Science research infrastructure
- The government is a major contributor to critical science research infrastructure that provides our scientists with access to world class facilities and nationally connected research systems, such as:
 - Royal Hobart Hospital's hyperbaric/hypobaric chamber
 - Integrated Marine Observation System
 - Southern Ocean Observing System
 - Blue Economy CRC
 - The Environmental Protection Authority's Analytical Services Tasmania
 - Entomology and Animal Health Lab
 - Tasmanian Seed Conservation Centre
 - Aquatic Animals Health and Vaccines Centre
 - The Greenhill Observatory at Bisdee Tier.
- Where possible we seek to collaborate with the Australian Government under the Regional Connectivity program to deliver digital infrastructure projects that enhance specific scientific capabilities.
- Climate Change and Renewable Energy

- Tasmania is a leader in renewable energy, reducing emissions and fighting climate change.
- The Tasmanian Government has committed \$10 million to deliver the next Climate Change Action Plan for 2023-25.
- The plan will support Tasmania's transition to a low emissions economy and help us reach our target to maintain net zero greenhouse gas emission, or lower, from 2030.
- In renewables Tasmania has a natural competitive advantage with proven hydro and world class wind, and we continue to invest and innovate in emerging hydrogen, ocean, geothermal and biomass opportunities.
- The government aims to grow our renewable energy sector sustainably over the next 20 years via a range of strategies including the Tasmanian Renewable Energy Action Plan.
- The responsibility for these policy outcomes sits under the Climate Change and Energy and Renewables portfolios respectively.

Antarctica and Southern Ocean

- Hobart is internationally recognised as the gateway to east Antarctica and the Southern Ocean and home to Australia's Antarctic Division (AAD).
- It is the permanent Antarctic gateway for the Australian and French National Antarctic Programs and is regularly used by the Antarctic programs of Italy, Japan and the United States.
- The Tasmanian Government provides financial support (\$200,000 per annum) to the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) which is headquartered in Hobart.
- CCAMLR is a 26-member international scientific commission that plays a key role in preserving marine life and environmental integrity in Antarctica and the Southern Ocean.
- The establishment of a state-of-the-art Antarctic and Science Precinct at Macquarie Point is a key focus area of the Hobart City Deal, signed in February 2019.

- The precinct will be an outstanding opportunity to attract global attention to Tasmania's Antarctic capabilities and draw investment from the global Antarctic community, strengthening our position as a world leading Antarctic Gateway.
- The precinct will co-locate key science research institutions and complement the Australian Government's investment into the \$1.9 billion RSV Nuyina icebreaker and over \$450 million in additional capital expenditure on Australia's Antarctic Research Stations.
- In April 2023, Dr Tara Martin commenced as Director, Antarctic Tasmania – Dr Martin has a background in scientific research and over 20 years of experience working in the Antarctic context including most recently as Acting Facilities Program Director, Marine National Facility at the CSIRO.
- The responsibility for the Government's Antarctic Gateway Strategy 2022-2027 and related policy sits under the state development portfolio.

Forum of Australian Chief Scientists

- Hosted by Australia's Chief Scientist, Dr Cathy Foley AO PSM, the Forum of Australian Chief Scientists and Advisers meets two to three times a year to share information about common issues and challenges related to science, technology and innovation that are of national importance.
- Tasmania will be represented on this Forum by the Director of Antarctic Tasmania from the Department of State Growth, Ms Tara Martin.

Space Science

- Tasmania's capabilities in space medicine and space human life sciences are being enhanced through the Centre for Antarctic, Remote and Maritime Medicine (CARMM) – a partnership between the AAD, UTAS, Menzies Institute for Medical Research and the Tasmanian Government.
- CARMM provides access to Australia's only established network of experts in remote and extreme environment clinical practice, research, training, and education.
- This network includes the PEGASUS EnviroLab at the Royal Hobart Hospital which operates the only human-rated, dual function hyperbaric/hypobaric chamber in the Southern Hemisphere.

- It aims to develop spacecraft simulator capabilities that can simulate space conditions, including pressure, gravity, temperature, light, and isolation.
- Space science is a key emerging sector for Tasmania and why the Tasmanian Government has recently invested \$500,000 into a Space Seed Fund and continues to engage industry to develop further developments in the sector.

STEM Engagement

- Engaging all Tasmanians in STEM futures continues to be a key priority for the Tasmanian Government.
- The department, in partnership with the UTAS, delivers a range of STEM engagement activities and events under the national Inspiring Australia program including:
 - The National Science Week program, which is usually held in August and includes a range of community-led events around the state.
 - The annual Science Meets Parliament event, now in its seventeenth year, which connect scientists and academics to parliamentarians and policy makers.
 - The annual STEM Excellence Awards which are presented in November, to recognise local scientific achievers and inspire others by showcasing innovative achievements across the core fields of study and research.
- On 23 February 2023, the Australian Government launched a national conversation to support the revitalisation of Australia's vision for science and research.
- On Monday, 3 April 2023 the minister met Dr Catherine P. Foley, Australia's Chief Scientist, to discuss the revitalisation of the Australia's National Science and Research Priorities and National Science Statement.
- Dr Foley was in Hobart to host a roundtable discussion focussed on national science policy challenges and associated opportunities as the first phase of the national conversation.
- The department prepared a submission to the Australian Government's call for input on refreshing Australia's vision for science and research priorities which detailed Tasmania's areas of scientific and research expertise.

- Trade Promotion
- The science sector is identified as priority sector in the Tasmanian Trade Strategy 2018-2025.
- Global opportunities for the science sector are being actively pursued through our international Trade Advocates Network with a focus on promoting Tasmania's Space, Antarctic and Marine science capabilities.
- The Tasmanian Trade Mission Plan will provide the sector with targeted opportunities to foster new research and industry collaborations by participating in trade missions to key markets such as New Zealand, Vietnam, Singapore, South Korea, Japan, the United Kingdom, Europe and the United States.

Key Statistics

Jobs/Investment created:

	Employment	Gross State Product value add (\$m)
Science Research Sector	4,000	331

Source: Wells Economic Analysis (2015).

Unit/Program Budget:

NA – activities are funded out of the Space, Science and Technology operational allocation or via specific funding requests (e.g., for digital infrastructure).

Background

Ministerial science related responsibilities:

- Science research infrastructure
 - Minister for Science and Technology
 - Minister for Health
 - Minister for Primary Industries and Water
 - Minister for State Development, Construction and Housing
- **Space** – Minister for Science and Technology
- **Climate Change** - Minister for Environment and Climate Change
- **Renewable Energy** - Minister for Energy and Renewables
- **Hobart City Deal** - Minister for State Development, Construction and Housing
- **Antarctic and Science Precinct** - Minister for State Development, Construction and Housing

- **STEM engagement** – Minister for Science and Technology

Released under RTI

Department of State Growth

Budget Estimates Briefing
Minister for Small Business
Minister for Science and Technology
Minister for Advanced Manufacturing and Defence Industries



Subject: SPACE SECTOR
Date prepared: 8 May 2023
Output Group: 1 Industry and Business Growth
Output: 1.2 Industry and Business Development

Speaking points

- Tasmania is a unique location for space research and exploration. Its southern latitudes, thin ionosphere, clear and dark skies, low population density and proximity to Antarctica have enabled Tasmanian scientists to become leaders in radio astronomy, space tracking, remote and extreme environment healthcare, space medicine and space-analog research.
- These specialised capabilities, coupled with Tasmania's unique research infrastructure, is set to play an important role in Australia's ambitions to actively participate in, and benefit from, the human exploration of our solar system.
- The scale of commercial activity in the global space economy is expanding rapidly. Technological advances and falling costs have ushered in a new era for the growing space sector, which is forecast to reach US\$1 trillion in value by 2040.
- Australia's space sector is growing at an annual rate of 7.1 per cent and is expected to grow to more than \$12 billion and employ 30,000 people by 2030.
- The Tasmanian Government recognises the enormous potential of the global space economy and the profound impact that a local space industry will have on economic growth, STEM skills and workforce development, infrastructure investment, industry collaboration and research sector innovation.

- Since signing a Memorandum of Understanding with the Australian Space Agency in 2019, the Tasmanian Government has taken measured steps to strengthen Tasmania's unique space research infrastructure capabilities, particularly in the fields of Space Domain Awareness and Space Medicine and Life Sciences.
- The government is supporting local technology companies and entrepreneurs to explore opportunities in space through the \$500,000 Tasmanian Space Technology Seed Fund.
- The fund was launched on 31 March 2022, and aims to grow Tasmania's space sector, drive innovation, strengthen industry collaboration, increase investment, and create new skilled jobs for Tasmanians.
- The fund is currently supporting four exciting projects:
 - **Handbuilt Creative** is developing a photorealistic mixed reality digital twin of the Moon and Mars, to support mission planning, simulation and training.
 - **Firmus Supercloud**, in collaboration with University of Tasmania (UTAS), is developing a high-performance computing platform that supports real-time identification and tracking of debris and other objects in space.
 - **Pivot Maritime**, in collaboration with Fortifyedge, is developing a spaceflight simulation system that accurately measures and monitors individual crew responses to the stressors of space.
 - **Geoneon**, is developing a satellite data analytics platform to help governments and communities effectively anticipate and plan for the impacts of natural disasters.
- The government has so far committed over \$900,000 to initiatives aimed at strengthening Tasmania's space research infrastructure and accelerating the growth of a commercial space industry. These initiatives include key commitments made as part of the 'Building a More Confident, Better Connected Digital Economy' policy:
 - \$100,000 to support the 'TEAM TASMANIA' partnership with HENSOLDT and the University of Tasmania. This amount includes \$25,000 in-kind and \$75,000 in cash.

- \$150,000 towards a high-speed optical fibre upgrade for the University of Tasmania's Bisdee-Tier (Greenhill) Observatory.
- \$80,000 to extend the functionality of the Royal Hobart Hospital's Hyper/Hypobaric chamber to support space life sciences research.
- These efforts helped attract HENSOLDT, a global leader in space radar technology, to Tasmania and establish the Southern Guardian Space Domain Awareness System in Hobart in partnership with the University of Tasmania.
- HENSOLDT currently employs 10 Full Time Equivalent (FTE) in Tasmania and has plans to employ 20-25 FTE.
- HENSOLDT has also sponsored a UTAS PhD student and is planning a six-month industry internship program for UTAS students.
- HENSOLDT's Hobart facility aims to be a leading centre for Australia's Space Domain Awareness capability and is expected to stimulate local innovation and create new opportunities for both defence and civil space applications.
- The Department of State Growth is also actively engaging with international space organisations, such as Collins Aerospace, that recognise Tasmania's geographic advantages and unique capabilities in remote and extreme environment medicine and Antarctic space-analogue research.
- Tasmania's capabilities in space medicine and space human life sciences are being enhanced through the Centre for Antarctic, Remote and Maritime Medicine (CARMM) – a partnership between the AAD, UTAS, Menzies Institute for Medical Research (MIMR) and the Tasmanian Government. CARMM provides access to Australia's only established network of experts in remote and extreme environment clinical practice, research, training, and education.
- This network includes the PEGASUS EnviroLab at the Royal Hobart Hospital which operates the only human-rated, dual function hyperbaric/hypobaric chamber in the Southern Hemisphere. It aims to develop spacecraft simulator capabilities that can simulate space conditions, including pressure, gravity, temperature, light, and isolation.

- These are just some of the exciting initiatives that are taking place in Tasmania that will help drive the growth and development of Tasmania's emerging space industry.
- That is why the Tasmanian Government is investing a further \$250,000 to support key projects, partnerships and strategic activities that will attract new investment and strengthen Tasmania's unique space, science and technology capabilities.
- This funding will help the Department of State Growth, in collaboration with key stakeholders, explore the development of niche space industry clusters that bring together major corporations, local start-ups, research institutions and academia, to focus on addressing the unmet needs and challenges of space domain awareness, space human life sciences and astronaut training.
- The Department of State Growth will also continue to proactively engage with national and international space agencies, participate in targeted trade and marketing activities, organise and attract space industry events and forums, and deliver community engagement initiatives to raise the profile of the sector.

Unit/Program Budget:

Tasmanian Space Technology Seed Fund*

2022-23 Budget	2022-23 Actual	2023-24	2024-25	2025-26	2026-27
\$500,000	\$274,000	\$ 226,000	\$	\$	\$

*Delivered over two rounds. Four companies have received funding with grant payments being made over an 18-month period.

Background

As part of the 'Building a More Confident, Better Connected Digital Economy' election commitment, the Tasmanian Government committed \$330,000 to support space industry research and development initiatives.

- \$100,000 to support the 'TEAM TASMANIA' partnership with HENSOLDT and UTAS. This amount includes \$25,000 in-kind and \$75,000 in cash.
- \$150,000 towards a high-speed optical fibre upgrade for the University of Tasmania's Bisdee-Tier (Greenhill) Observatory.
- \$80,000 to extend the functionality of the Royal Hobart Hospital's Hyper/Hypobaric chamber to support space life sciences research.

TEAM TASMANIA (HENSOLDT) partnership

The TEAM TASMANIA partnership between the Tasmanian Government, HENSOLDT and UTAS was officially announced on 20 July 2021.

- This partnership aims to position Tasmania as the prime location and leader of Australia's sovereign Space Domain Awareness (SDA) capabilities by combining the University's continent-wide network of radio telescopes and space tracking infrastructure with HENSOLDT's advanced space radar technology.
- The Tasmanian Government committed \$100,000 to HENSOLDT to support the TEAM TASMANIA initiative, with \$75,000 in cash and \$25,000 in-kind.
- This investment will assist HENSOLDT in establishing its SDA facility in Hobart, integrating its technology with the University's infrastructure, sponsoring a PhD student, and promoting Tasmania's capabilities to Defence and Civil space agencies.
- A \$75,000 grant deed was executed with HENSOLDT and initial payment of \$60,000 (excluding GST) made in the 2020-2021 financial year. The remainder of the grant was paid in 2021-22.
- The committed in-kind contribution of \$25,000 to HENSOLDT includes marketing, promotional and advocacy services provided by the Department of State Growth.

Greenhill Observatory – Fibre Optic Upgrade.

- As part of the Australian Government's Regional Connectivity Program, the Tasmanian Government has committed \$150,000 to fund 42-24's deployment of an optical fibre extension between the Midlands Highway and Bisdee Tier to provide 10 Gbps data capacity to the Greenhill Observatory operated by UTAS.
- The upgrade will support the expansion of the University's space tracking and space domain awareness capabilities by providing secure, reliable, and high-speed data communications infrastructure.

Department of State Growth

Budget Estimates Briefing
Minister for Small Business
Minister for Science and Technology
Minister for Advanced Manufacturing and Defence Industries



Subject: **SUBSEA FIBRE CABLE**
Date prepared: 9 May 2023
Output Group: 1 Industry and Business Growth
Output: 1.2 Industry and Business Development

Speaking points

- The Tasmanian Government is committed to improving connectivity and digital inclusion for all Tasmanians.
- To enhance digital resilience, we are investing \$1.5 million to identify additional subsea fibre cabling opportunities across Bass Strait.
- This investment builds on the Tasmanian Government's \$297.2 million funding in digital transformation across the forward estimates and supports our vision for a prosperous and connected state.
- High quality, reliable and competitive digital infrastructure is important for providing the key services the government delivers and will provide the basis for future economic growth in the state.
- It is also important the Australian Government recognises and accepts its role for telecommunications. We believe the Australian Government must step-up its responsibility to improve connectivity and digital inclusion for all Tasmanians.
- Our government has written to the Prime Minister and written and met with other relevant officials seeking their partnership to consider and deliver additional subsea cabling opportunities to Tasmania.
- Tasmania's backhaul internet connectivity is currently dependent on three subsea cables that connect the state to the mainland and in turn the rest of the world.

- Tasmanians may recall in 2022 the disruption to their ability to access digital services as a result of damage to the fibre optic cable infrastructure that connects our state to mainland Australia. Another outage in the last fortnight further reinforces the need to improve our digital resilience.
- Therefore, the Tasmanian Government is engaging with industry participants and is looking carefully at new subsea cable proposals that deliver a timely, technically sound and economically optimal outcome for Tasmania in partnership with industry and, I hope, the Australian Government.
- Project Marinus will bring fibre optic capacity to enhance our digital environment, but collectively we can do more to ensure we have the digital capacity and diversity available in our State to grow our economy.

If asked about who we are engaging with

- Once our targeted industry engagement and evaluation process is complete, we will provide information on next steps. Prior to any partnership decisions, we must respect the commercial confidentiality of the industry partners we are engaging with. We aim to work across the telecommunications sector to ensure the best outcome for Tasmanians in what is fast moving and dynamic industry.

Key Statistics

Jobs/Investment created:

\$1.5 million to identify and progress additional subsea digital cabling opportunities across Bass Strait.

Unit/Program Budget:

2022-23 Budget	2022-23 Actual	2023-24	2024-25	2025-26	2026-27
\$	\$	\$1,500,000	\$	\$	\$

Background

- The Department of State Growth, in consultation with other Tasmanian Government agencies and the Tasmanian Development Board considered the state of current aged infrastructure.
- The Tasmanian Government has received several unsolicited bids from key commercial proponents, which could protect the state from critical infrastructure investment costs should government be forced to go it alone without private investment. The government reviewed market interest by writing to identified stakeholders with an interest in subsea digital cabling projects that could potentially connect to Tasmania, to understand their strategic plans for deployment.
- The government established an interagency negotiation team to advise on Tasmania's digital infrastructure needs; costs and benefits analysis of all available options; and procurement strategy including negotiating parameters. The interagency negotiation team comprised members from Department of Premier and Cabinet, Department of Treasury and Finance, Infrastructure Tasmania and the Department of State Growth. A probity adviser and technical expert were engaged to provide independent subject matter expertise.
- The government has approved the recommendation of the interagency negotiation team to not undertake a formal procurement process. The interagency negotiation team has recommended the government adopt a specialised procurement strategy reflective of circumstances including the outstanding need to secure a funding co-contribution from the Australian Government. This process has been conducted in such a manner that upholds key principles of the Treasurer's Instructions including value for money and promotion of open, impartial and effective competition.
- The government is actively working through a series of policy options and continues to engage with industry participants and look carefully at subsea cable proposals that deliver a timely, optimal and affordable outcome for Tasmania. The government is actively negotiating a Memorandum of Intent with the lead proponent selected through this process.
- In view of contemporary regional and global geopolitics and Tasmania's reliance on major trading partners, it is prudent to consider future infrastructure to secure the State's economic future beyond local demand and national contexts. The incidental proponents provide pathways for consideration that would eliminate over-reliance on, for example South China sea routes and provide the most optimal redundancy for trade.
- Considering investment in more than one solution could also be evaluated, with a view to benefit from each project's unique aspects and opportunity regarding sovereign capability, new sector development and other factors.

- It is expected that any new subsea fibre cable infrastructure will cost approximately AUD\$135-150 million and would require a financial co-contribution from both the Tasmanian and Australian Governments to proceed.
- While global supply chain disruptions have resulted in an 18-month delay, additional subsea fibre cable infrastructure could be operational by 2026.
- While Marinus Link, which is primarily an electricity connector, will complement Tasmania's digital connectivity, there is a more urgent need to upgrade the State's infrastructure as Project Marinus will, at the earliest, be built at the end of the decade. Further, Project Marinus cables will follow a similar geographic path to existing cables and so path diversity remains narrow, and they do not connect internationally directly.

Telstra Outages

- On 1 March 2022, Tasmania was impacted by a state-wide internet outage which affected internet, mobile data, some free to air TV and radio stations, and EFTPPPOS services.
- Telstra advised that the outage was a result of two separate but unrelated incidents involving damage to fibre optic cable infrastructure in Tasmania and Victoria.
- Services were restored to normal levels by Telstra early in the evening of 1 March 2022.
- Critical services such as the emergency '000' services continued to operate during this time.
- On 24 May 2023, Tasmania was impacted by a state-wide impairment to internet, mobile data, some free to air TV and radio stations, and EFTPPPOS services.
- Telstra advised this event was caused by an incident involving damage to fibre optic infrastructure in Victoria which resulted in the outage of one of its two cables to Tasmania.
- Services were restored to normal levels by Telstra early in the morning of 25 May 2023. The duration of the outage was over 13 hours.
- The Tasmanian Government is working with Telstra to obtain detailed information relating to these incidents to enable the government to assess the ongoing risks to internet and telecommunications services in Tasmania.