PROJECT MARINUS

INITIAL FEASIBILITY REPORT

Overview

ARENA
Australian Government
Australian Renewable Energy Agency

TasNetworks
Delivering your power

Authorisations

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Responsibilities

This document is the responsibility of the Project Marinus Team, Tasmanian Networks Pty Ltd, ABN 24 167 357 299 (hereafter referred to as "TasNetworks").

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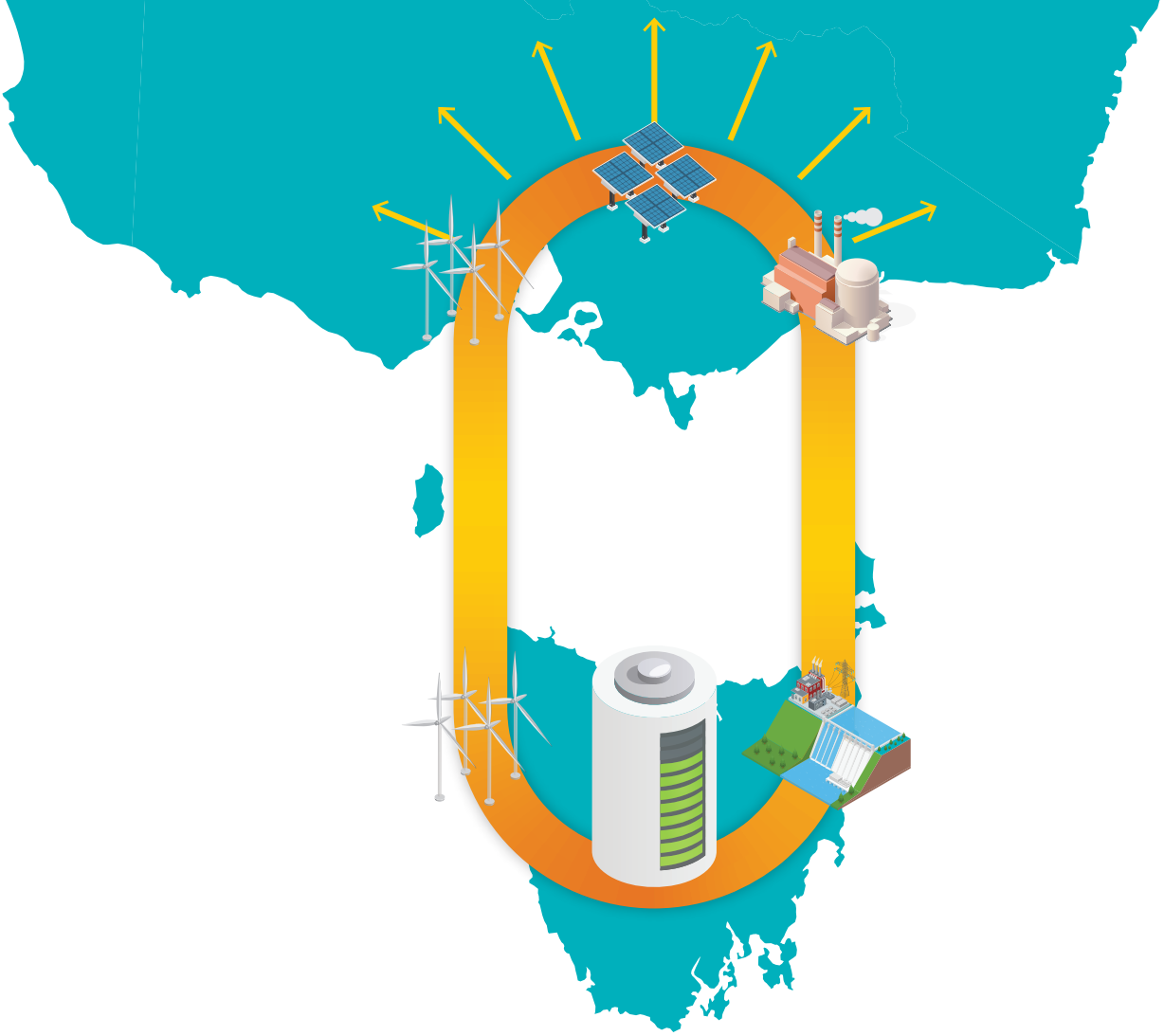
PROJECT MARINUS



Project Marinus is investigating the case for further Bass Strait interconnection as part of Australia's future electricity grid.

The project is being undertaken by TasNetworks and is considering a new interconnector, known as **Marinus Link**, to operate in addition to the existing privately-owned Basslink interconnector. The project has received $20 Million in funding support from the Tasmanian Government through TasNetworks and the Commonwealth Government through the Australian Renewable Energy Agency (ARENA).

The National Electricity Market (NEM) is going through unprecedented change as it transitions to a low-carbon future. Over the coming decades coal-fired generators will continue to retire and more large and small-scale renewable generators will take their place. This is affecting the way electricity is produced, transported and consumed. The Australian Energy Market Operator (AEMO) has identified that interconnectors will play an important role in supporting energy solutions for customers that are affordable, reliable and clean.

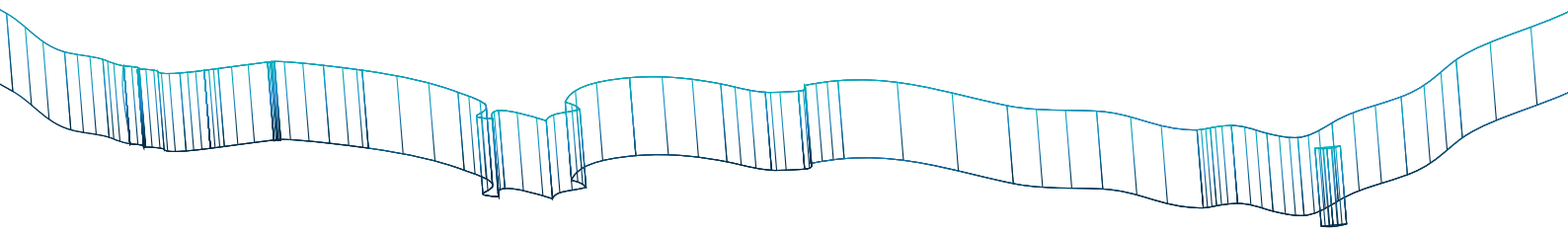
WHY HAVE YOU PREPARED THIS INITIAL FEASIBILITY REPORT?

The Tasmanian Government, with support from the Commonwealth Government through the Australian Renewable Energy Agency, asked TasNetworks to assess the feasibility and business case for a second Bass Strait interconnector. TasNetworks is a state-owned company that owns, operates and maintains the electricity transmission and distribution networks in Tasmania, and has jurisdictional responsibility for transmission system planning in Tasmania under the National Electricity Law.

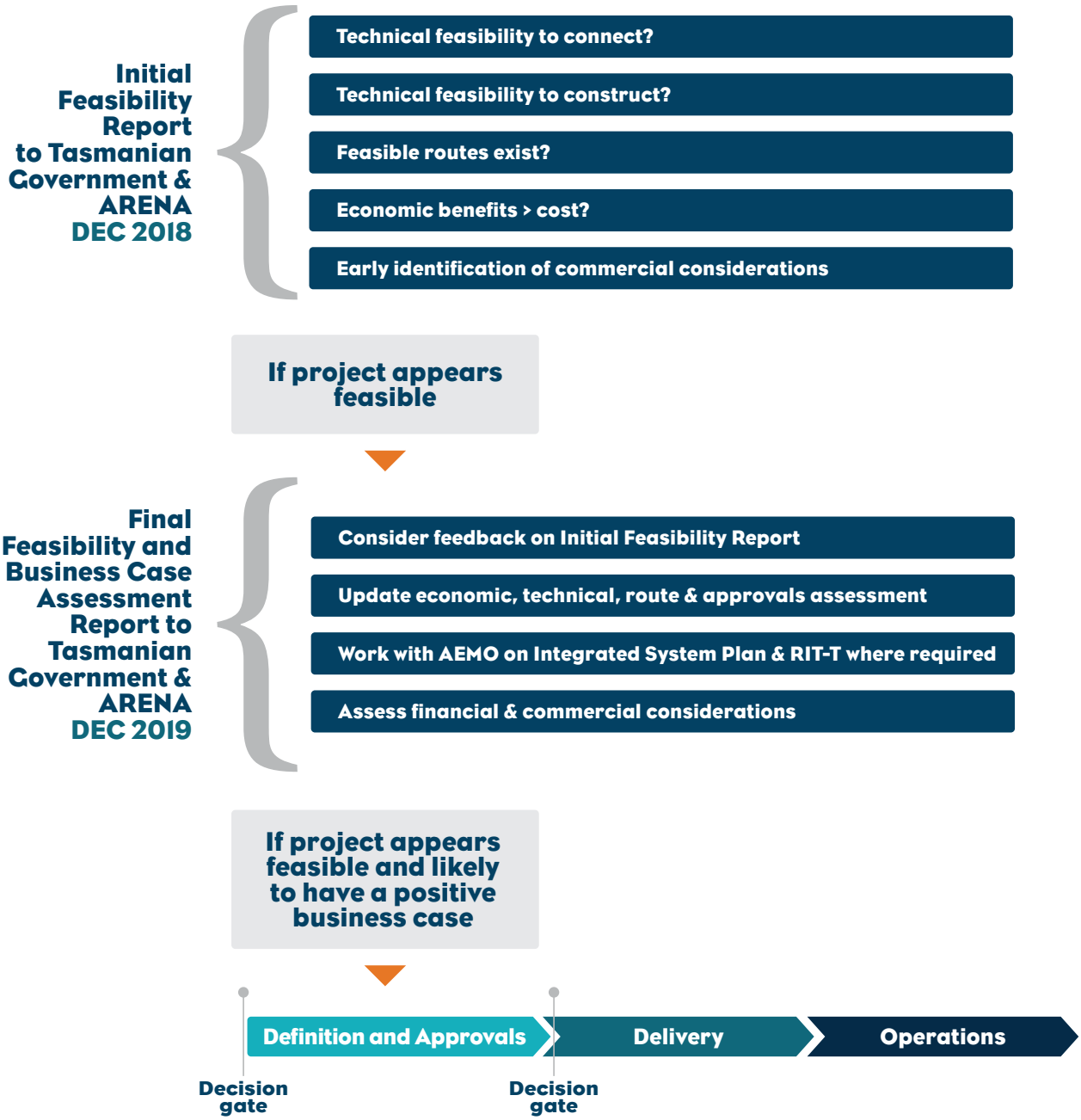
The current assessment builds on the 2017 report by Dr John Tamblyn, ***Feasibility of a Tasmanian Second Interconnector - Final Study*** commissioned by the Tasmania and Commonwealth Governments. Dr Tamblyn recommended that more detailed study be undertaken when one or more preconditions were met, that are now eventuating. Work undertaken by Hydro Tasmania with ARENA funding support highlights Tasmania's potential to become Australia's renewable energy battery, and the Australian Energy Market Operator has developed the first Integrated System Plan for the National Electricity Market, with interconnection playing a key role.

HOW WILL YOU ASSESS WHETHER MARINUS LINK IS FEASIBLE?

The work underway has two main reports that consider feasibility of the project, and whether it is likely to have a viable business case. The process includes a regulatory assessment, under the regulatory investment test for transmission (the RIT-T), to assess whether or not customers in the NEM are better off with Marinus Link. The reports, and key matters being considered, are summarised on the following page.



Flowchart of study approach



This initial feasibility report outlines our findings so far and will be followed by a final Feasibility and Business Case Assessment Report forecast at the end of 2019.

PROJECT MARINUS

WHAT ARE THE KEY FINDINGS SO FAR?

A second Bass Strait interconnector – Marinus Link – would be a strategic interconnection investment providing NEM-wide economic benefits.

Marinus Link provides value by enabling substitution of lower cost Tasmanian hydro generation, pumped hydro storage and competitive renewable resources for higher cost thermal and renewable generation in mainland regions of the NEM.

It enables cost-effective dispatchable on-demand generation and a range of power system stability services to firm and support the NEM's transition to renewable energy resources.

The key findings in this Report support the continuation of the Feasibility and Business Case Assessment work, co-funded by ARENA and TasNetworks.

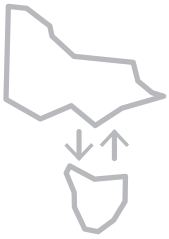
Given the long lead-time to implement Marinus Link, and the potentially significant benefits, **it is prudent to continue the project as a risk mitigation measure for a transforming NEM**. Early commitment to fund activities in the next phase – the Definition and Approvals phase – would allow a number of long lead-time items to progress. This would support a 'shovel ready' project able to move to the Delivery phase by 2021 or when required. Supporting land and easements should be secured.

IS IT TECHNICALLY FEASIBLE?

The work to date shows that Marinus Link will be technically feasible for a capacity of 600 megawatts (MW) or 1200 MW delivered in two 600 MW stages. This staging reflects:

- power system design considerations, to maintain system stability so that no more than 600 MW of load can be lost in a credible contingency event; and
- the expected manufacturing and construction timeframes.

Indicative timetable



WHERE WILL IT GO?

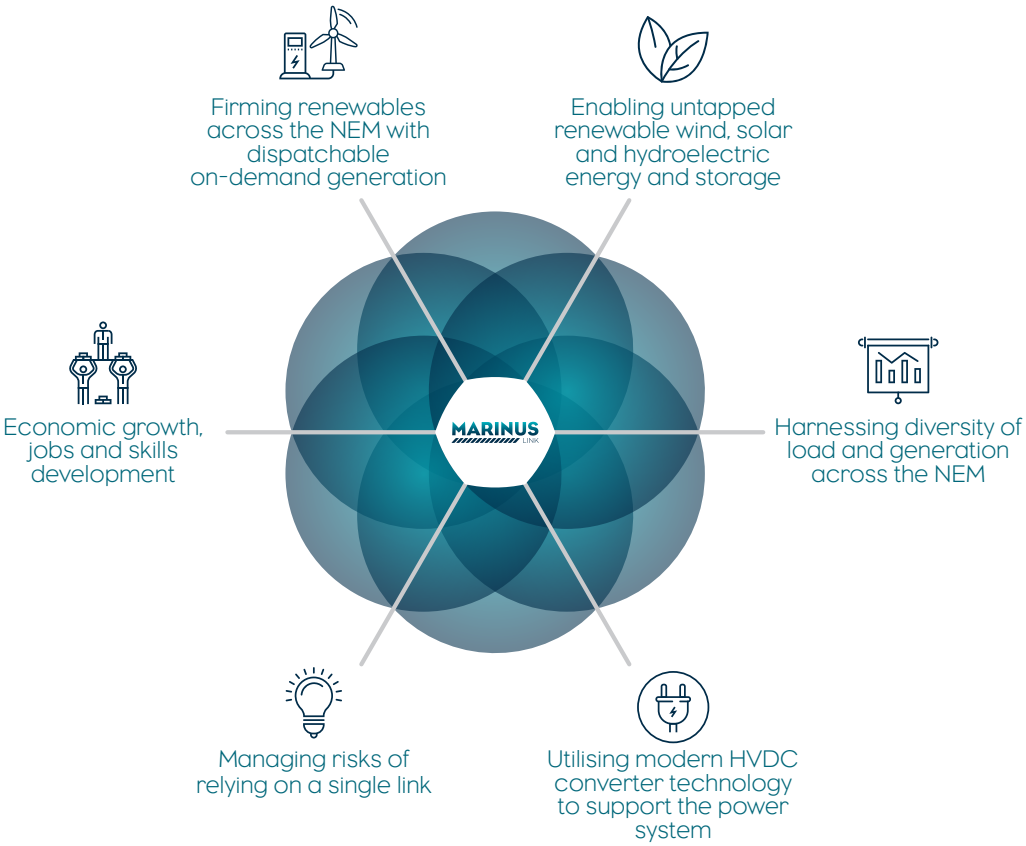
Routes have been identified that are feasible and likely to obtain environmental and planning approvals.

The favourable routes connect a converter station in the Sheffield or Burnie area in north-west Tasmania by high voltage direct current (HVDC) cable to a converter station in Victoria's Latrobe Valley. Each shortlisted route was assessed against environmental and social impact criteria including: landholdings, proximity to houses, high quality agricultural land, native vegetation, threatened ecological communities, threatened species, sensitive coastal ecosystems, marine archaeology (including shipwrecks), fisheries and potential contamination. There were no fatal flaws identified in relation to any of the favourable routes and the identified issues are considered manageable through community engagement, route refinement, construction methods and timing, and native vegetation offsets. To be able to deliver Marinus Link, environment, land use planning and cultural heritage approvals will be required across Commonwealth, Victorian and Tasmanian jurisdictions. Based on assessment to date, these external approvals are achievable for the favourable route options.

Details of shortlisted routes have not been included in the report due to commercial sensitivities and TasNetworks' intent to engage with landowners and communities ahead of public release of the favoured route. Identification of the favoured route is expected in the first half of 2019.

Marinus Link indicative favourable route options

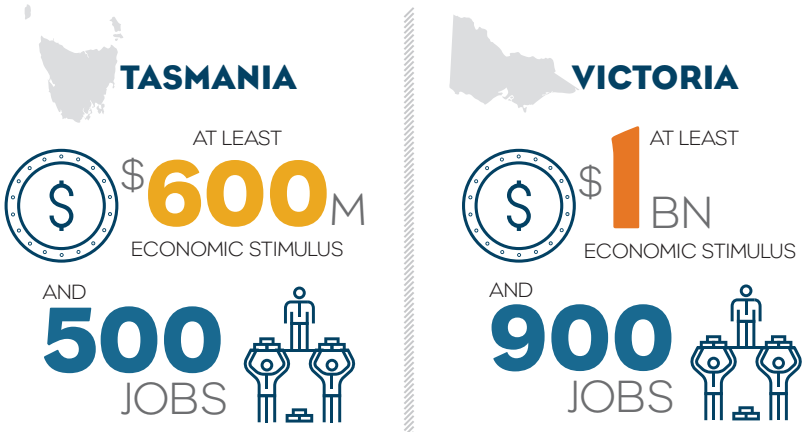
WHAT ARE THE BENEFITS OF MARINUS LINK?



In addition to benefits to energy customers, Marinus Link will deliver broader economic stimulus as a result of the construction and operation of the link.

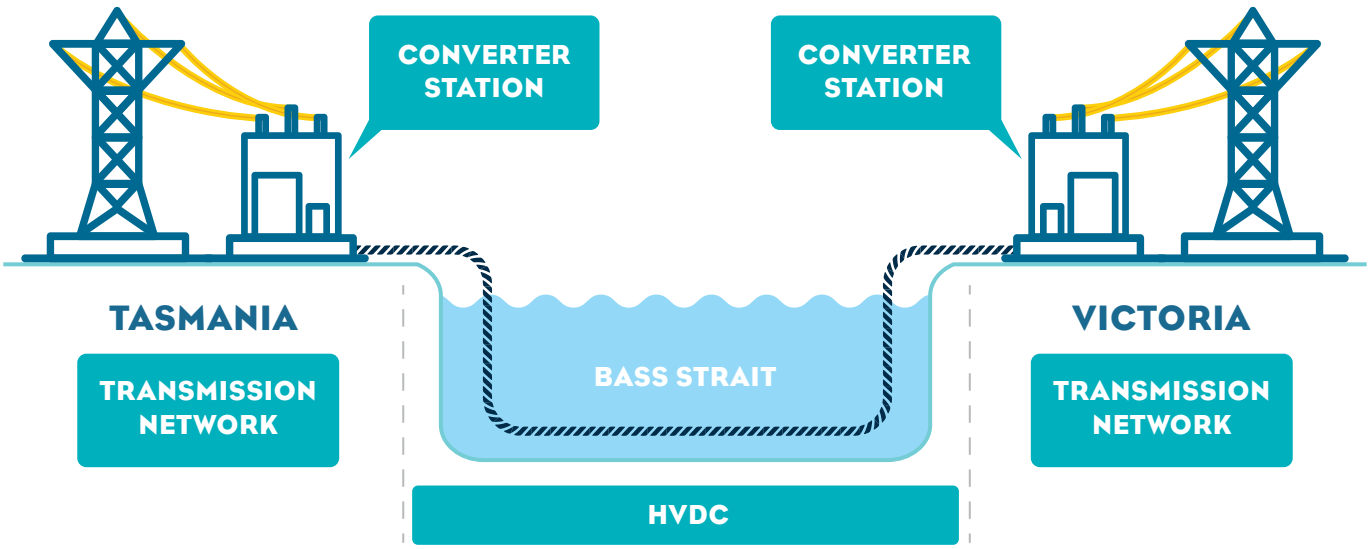
In Victoria, construction and operation of Marinus Link is estimated to provide economic stimulus of over $1 billion, with more than 900 direct and indirect jobs during peak construction.

In Tasmania, Marinus Link would provide economic stimulus directly, and also from the new investment in renewable energy projects that it enables. In Tasmania construction and operation of Marinus Link is estimated to provide economic stimulus of over $600 million, with more than 500 direct and indirect jobs during peak construction and thousands more in related projects.



WHAT ARE THE COSTS?

Marinus Link is estimated to have a capital cost of approximately $1.3 - $1.7 billion for a 600 MW capacity interconnector and approximately $1.9 - $3.1 billion for a 1200 MW capacity interconnector.



WILL THE BENEFITS OUTWEIGH THE COST?

$470M* TO $480M **ECONOMIC WORTH** TO ENERGY MARKET DEPENDING ON 600 MW OR 1200 MW

*UNDER A SCENARIO OF EARLY COAL RETIREMENT

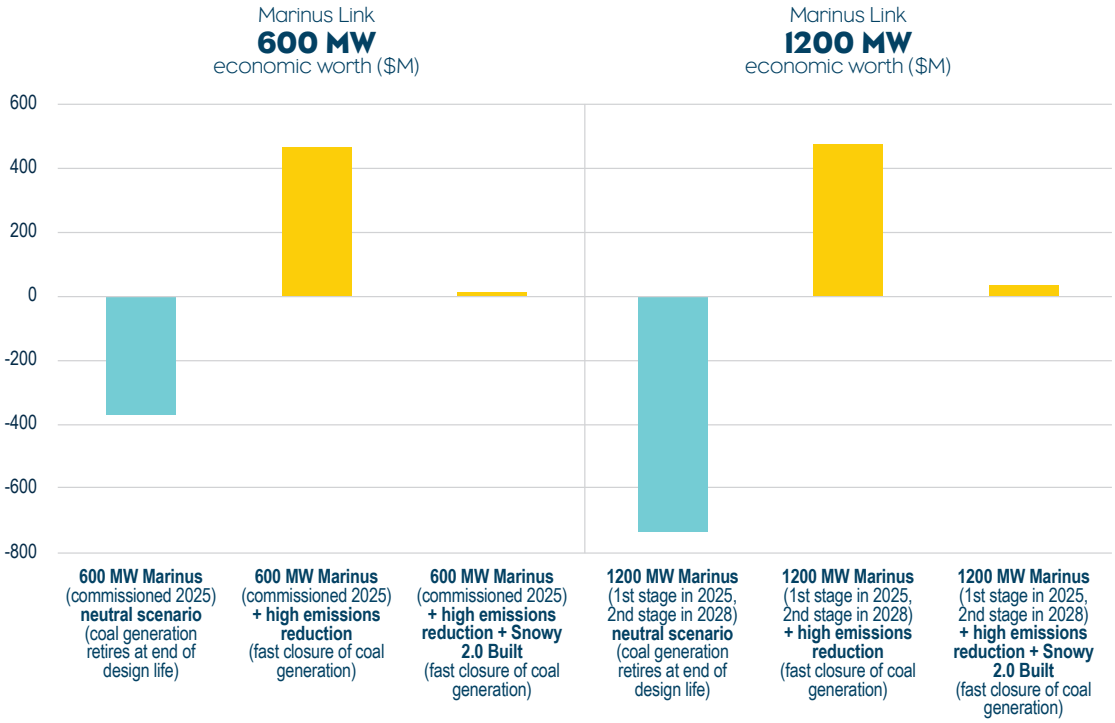
The benefits outweigh the costs under some plausible scenarios. The economic feasibility of Marinus Link depends on assumptions made about future developments in the NEM and the time that Marinus Link is in service:

- The Initial Feasibility Report shows that there are plausible circumstances where Marinus Link can provide greater benefits than costs from the mid-2020s; and
- Under some other circumstances, the benefits don't outweigh the costs until a later date.

The largest single influencing factor in the economic viability and timing of Marinus Link is the trajectory of coal-fired generation retirement in the NEM. A key value driver for Marinus Link is its ability to supply on-demand renewable power to the NEM as large-scale retirement of coal fired generation occurs.

The benefits of Marinus Link are likely to be greater than costs when approximately 7000 MW of the NEM's present coal-fired generation capacity retires, which could occur from the mid 2020s (with early retirement) to the mid 2030s (with retirement at the end of design life). Coal-fired generators could retire ahead of design life for emissions reduction or economic reasons.

Economic worth increases as coal retires - such as under higher emissions targets [1]:



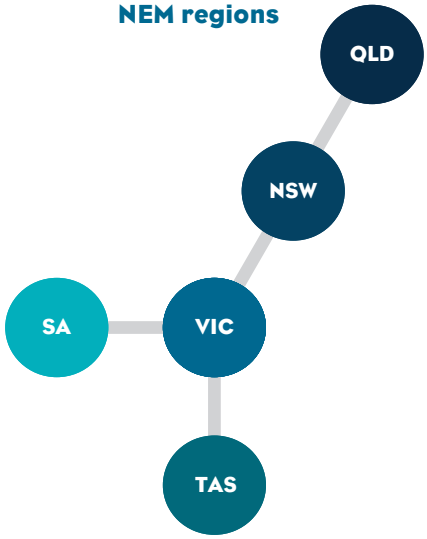
1 Economic worth varies under different scenarios

WHO WILL PAY?

In the event that Marinus Link is regulated, most of the energy market benefits of Marinus Link would be realised in mainland NEM regions. This would support lower cost energy outcomes to meet mainland NEM customer demand.

If the link provides regulated services the present NEM regulatory process (shown below) is unlikely to result in a fair pricing allocation for interconnector services. This will need to be addressed.

NEM regions



The present NEM regulatory process for Marinus Link

1

Regulatory Investment Test-Transmission (RIT-T)

The RIT-T is the test used to determine whether a transmission investment would be economically efficient in the electricity market. It tests for economic efficiency by determining whether major network investments would provide net positive benefits for all who produce, consume or transport electricity in net present value (NPV) terms.

2

Revenue Allowance

Assuming Marinus Link satisfies the RIT-T regulatory requirements, the Australian Energy Regulator will determine an efficient revenue allowance under a revenue setting process.

3

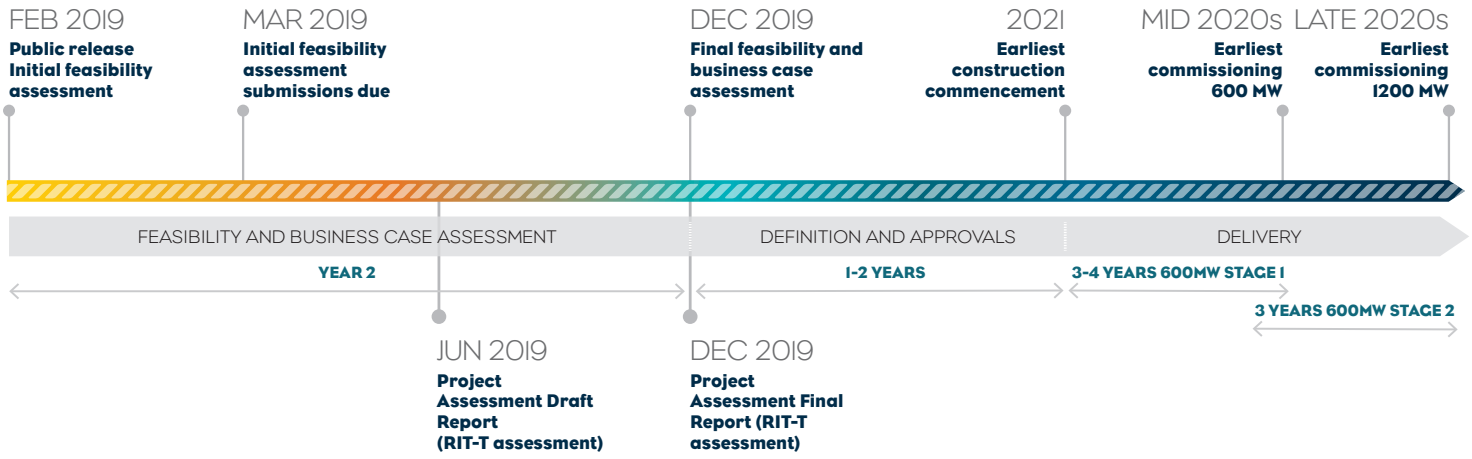
Pricing Allocation

Under the present framework, allowed revenues are recovered from Victorian and Tasmanian customers as part of the network charge component of bills.

To progress the link, solutions will be needed to ensure fair pricing outcomes. This could include contributions from government to recognise national benefits and new pricing frameworks across the NEM that align the cost recovery of interconnectors with the beneficiaries.

WHAT IS THE TIMELINE?

An indicative timeline of the project schedule is provided here



HAS THE COMMUNITY BEEN ENGAGED?

In July 2018 TasNetworks released the first consultation document under the RIT-T process – the **Project Specification Consultation Report (PSCR)** – to consider a second Bass Strait interconnector. Submissions closed in late October 2018.

Submissions covered a number of broad themes and reinforced the requirement for rigorous analysis and consultation to ensure good customer outcomes. Some of the matters raised as part of the RIT-T consultation are not able to be considered under the present RIT-T legal framework, but are relevant to considering the feasibility and business case of Marinus Link.

The Initial Feasibility Report summarises feedback on the RIT-T consultation, and includes information to address a number of matters raised in response to submissions. Further information in response to the submissions will be developed and shared as the Feasibility and Business Case Assessment, including the RIT-T process, continues.

Stakeholder and community engagement will continue to connect, inform, consult and collaborate with project stakeholders.

The Feasibility and Business Case Assessment is supported by a Stakeholder and Community Engagement Plan which is available on the Project Marinus website https://projectmarinus.tasnetworks.com.au. The goal is for the planned engagement activities to be coordinated, complementary and tailored to key stakeholder groups.

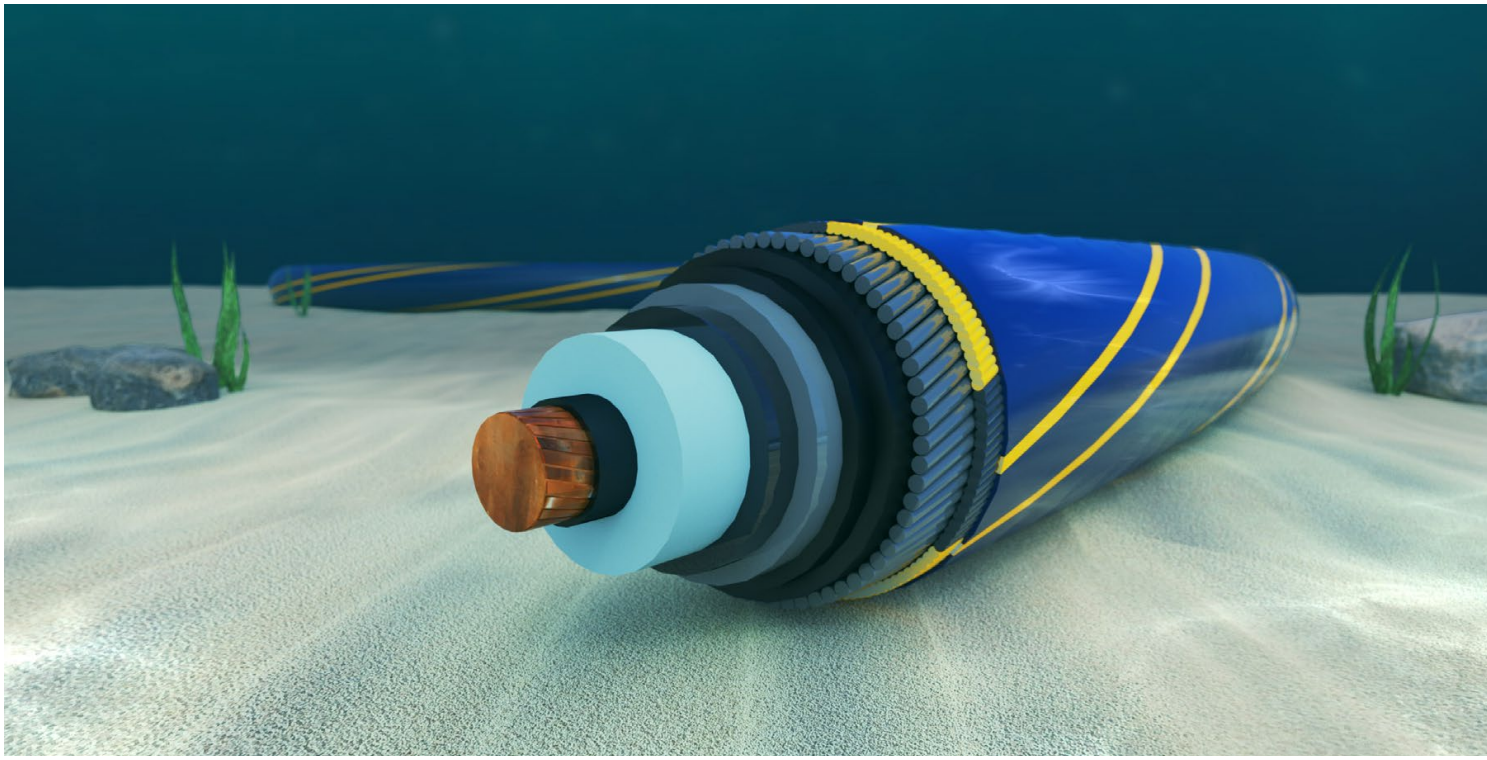
Following the release of the Initial Feasibility Report, stakeholder and community engagement activities will continue throughout 2019.

WHAT IS HAPPENING NEXT?

The findings from this Initial Feasibility Study will be shared with a range of interested stakeholders, with feedback requested. We will advertise our public community engagement forums in local newspapers and social media. To register for our mailing list or find out more about Project Marinus, you can email us at projectmarinus@tasnetworks.com.au or call us on 1300 127 777.

Our analysis continues into 2019 and will include:

- considering feedback on Initial Feasibility Report;
- updating route option, economic, technical and approvals feasibility assessments;
- working with AEMO as the Victorian transmission planner and national planner, to progress further work on the ISP and Marinus Link RIT-T process (where required) – with a final assessment forecast by December 2019;
- assessing in greater detail the financial and commercial considerations to support the viability of Marinus Link, to secure an income stream, financing and appropriate customer pricing outcomes for Marinus Link; and
- summarising analysis in the Final Feasibility and Business Case Assessment Report, forecast to be released in December 2019.



QUESTIONS AND FEEDBACK?

Our Initial Feasibility Report seeks your feedback on the following questions which will support our understanding of stakeholder views on the Report and inform our future work:

1. Is there enough information in the Report to understand the value Marinus Link can provide? If not, what information would you like to see in future reports?

2. What aspects of the report need further explanation?

3. Are there any fundamental concerns with our analysis in the Report? And if so, what are these concerns and how could we address them?

4. Do you agree with our assessment that it is prudent to continue Project Marinus through to the Definition and Approvals phase? Why is that?

5. If Marinus Link provides greater benefits than costs as part of efficient transition of Australia's NEM, then what principles should be taken into account when considering:
   a. who should pay to progress Marinus Link?
   b. who should pay for the national energy market benefits Marinus Link provides?
   c. who should pay for the broader benefits beyond the energy sector that Marinus Link provides?

6. Is there any other feedback that you would like to provide, to help us consider the feasibility and business case for a second Bass Strait interconnector?

Please provide your feedback to us by 29 March 2019.

Our Initial Feasibility Report is available on our website projectmarinus.tasnetworks.com.au. You can stay informed about Project Marinus in a number of different ways. Email us at projectmarinus@tasnetworks.com.au to sign up for our customer engagement sessions and mailing list or provide feedback or call us on 1300 127 777.

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CONNECTING AUSTRALIA TO LOW COST, SECURE & RELIABLE, CLEAN ENERGY

PROJECT MARINUS

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