Goanna Energy Consulting Pty Ltd

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A Report to

Tasmanian Small Business Council
Uniting Small Business

On

TasNetworks' *Project Marinus* Project Specification Consultation Report – Small Business & Consumer Impacts

October 2018

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The analysis is based on historic consumption patterns. Operational changes are likely to impact on future energy consumption, therefore this analysis has inherent limitations.

The contestable analysis does not take into account GST, Network Use of System costs, Market Fees, Ancillary Services, metering charges (apart from cost differences) or Network Loss Factors, which apply equally to all retailers and are generally passed through "at cost".

This contestable analysis takes no account of contractual differences or the Clients preferences for contractual Terms and Conditions, which often require a value judgment.

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EXECUTIVE SUMMARY

TasNetworks is currently assessing of the case for a second interconnector across Bass Strait. As part of this, it is applying the Regulatory Investment Test – Transmission (RIT-T) to the proposed project. The TSBC has requested Goanna Energy Consulting Pty Ltd to undertake a consumer focused assessment, including on Tasmanian small business, of the *Project Marinus* Project Specification Consultation Report (PSCR) published by TasNetworks. Our report is also being made available to other interested consumer advocates. We welcome the opportunity to undertake this assignment for the TSBC.

The Project and Process

Tasmania has significant wind resources and also has significant hydro-electric resources, some of which are capable of being developed to provide pumped storage. However, this additional generation is only really valuable if it can reach the mainland market, which would likely require a second Bass Strait interconnector – dubbed *Project Marinus*. The project would involve building a new HVDC (High Voltage Direct Current) undersea link of either 600 or 1,200 MW capacity. TasNetworks has identified several possible routes from northern Tasmanian to Victoria (see **Figure 1**). Indicative capital costs are put at $1.4-$1.9 billion for the 600 MW option and $1.9-$2.7 billion for 1,200 MW, with an additional $18 million per annum for operations and maintenance. Time from concept to commissioning is estimated at 5 years with a build time of 2 years.

As *Project Marinus* is being put forward as a regulated interconnector, the National Electricity Rules (NER) requires TasNetworks to apply the RIT-T to the proposal. This is essentially a cost-benefit analysis designed to assess the project and ensure it provides net benefits to the electricity market, including producers, transporters and consumers. A RIT-T must give due consideration to alternative options and assess 'credible options' before identifying the best way to address needs—called the 'preferred option'. The preferred option maximises the present value of the net economic benefit (that is, benefits minus costs). As such, the RIT-T is intended to promote efficient transmission investment.

RIT-T has three stages: a Project Specification Consultation Report (PSCR); a Project Assessment Draft Report (PADR) at least 12 months after the first stage ends; and a Project Assessment Conclusions Report (PACR) specifying the preferred option. The PSCR and PADR allow for consultations with interested parties, including consumers and their advocates. Interested parties can dispute application of the RIT-T in the PACR to the AER.

Consumer Benefits and Costs in the RIT-T

The measurement of benefits in the RIT-T goes beyond just those accruing to consumers of electricity to also include benefits to producers and transporters of electricity. This relies on healthy competition between rival producers to ultimately pass on benefits to consumers in the form of lower prices but the extent to which will occur in practice is problematic.

Market benefits typically counted in a RIT-T include: lower plant variable operating costs, lower fuel cost substitution, reduced voluntary load curtailment, reduced involuntary load shedding, a delay in (or more efficient) investments, reduced network losses, lower ancillary services costs, competition benefits (from bidding lower into the spot market) and 'option values'.

Costs to be included are construction, operating and maintenance, and compliance.

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The RIT-T has some shortcomings that can impact consumers as the National Electricity Objective of maximising the long term benefits to consumers is less certain (Section 3.3).

The Interconnector Conundrum

While the RIT-T is important to consumers it can also present them with a conundrum. This arises because NEM interconnectors are mostly regulated but competing options, such as generation or demand response, are market based. Hence, all options will not be on a level playing field and generators have an incentive to oppose new regulated interconnectors given that they provide additional inter-regional competition to them. Consumers can be caught in the middle in terms of whether to support new interconnectors.

TasNetworks' Project Specification Consultation Report

We welcome that TasNetworks has publicly released its PSCR for *Project Marinus* and actively sought to engage with Tasmanian and Victorian consumers on it.

The Identified Need proposed relies heavily on economic benefits flowing from a diversity of generation in Tasmania being available to the NEM. In turn, this relies on Tasmania's potential to develop pumped storage under the 'Battery of the Nation' concept proposed by Hydro Tasmania and additional on-island wind generation using the considerable wind resources in Tasmania. However, the narrow approach adopted towards specifying the Identified Need contrasts with ElectraNet's broader range of reasons for *Riverlink*. Use of the qualified term "potential" also contrasts to ElectraNet's more definite wording.

In assessing the PSCR we considered the impact of three important related developments. First, AEMO's Integrated Systems Plan (ISP) found that *Project Marinus* was not a preferred option for interconnector development in the period up to the mid 2020s, with other projects delivering greater benefits. TasNetworks believes that AEMO's assumptions and modelling need to be updated. Second, the economics of *Project Marinus* are highly dependent on the development of Hydro Tasmania's *Battery of the Nation* initiative, which is still under assessment, but which appears to currently include very optimistic estimates of pumped hydro capacity (4,800 MW) and its costs ($1 million per MW). Complex environmental and planning issues may also arise. It may also further entrench Hydro Tasmania's already considerable market power in Tasmania. Third, AEMO has supported the use of integrated least cost planning to connect 34 Renewable Energy Zones (REZs) across the NEM as this would lower the considerable costs involved. Three of these are on mainland Tasmania but need a large new (costly) interconnector to supply Victoria and other parts of the NEM.

Proposed Market Benefits

Access to more diversified dispatchable Tasmanian generation is seen as a market benefit of *Project Marinus*, with the case depending on the development of wind and pumped storage to even out intermittency. However, Tasmania is not unique in being able to offer such projects and may even face some disadvantages, such as having to build a costly new undersea link. The Victorian Renewable Energy Target (VRET) will deliver about 4,800 MW of additional renewable generation to Victoria, almost certainly crowding out some Tasmanian renewable generation. The PSCR observes that higher growth in Victorian wind may lead to greater price volatility in that region and increase the value of interconnector 'arbitrage', particularly if price volatility prompts the closure of more coal-fuelled generation. However, it also acknowledges that mainland storage (e.g., Snowy 2.0, bespoke pumped

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storage or battery) will act to dampen the volatility upon which storage-based arbitrage relies. This limits the market benefits of *Project Marinus*, including to Victorian electricity consumers.

The PSCR points out that a second interconnector will benefit energy security in Tasmania and supply reliability in Victoria by guaranteeing ***access to Tasmanian dispatchable generation*** during critical summer peaks. Once again, *Project Marinus* is not the only means of providing this, with Tasmanian energy security already assessed as adequate and able to be further enhanced by local options, and Victoria able to gain access to other summer supply options. The issue then is can *Project Marinus* deliver more for less?

The PSCR argues that a second interconnector could provide multiple ***ancillary services*** to Tasmania and Victoria. However, TasNetworks will need to demonstrate the need for these, consider other options and demonstrate which offers the lowest cost. Tasmania may have a limited need that can be satisfied from cheaper existing or new local sources. Victoria's need must also be considered and compared to alternative sources.

The PSCR argues that a second interconnector would ***increase inter-regional market access*** by enhancing the reliability of the Tasmania to Victoria inter-regional flow path, thereby increasing the firmness of generators' access to each region. It suggests that this will reduce contract costs and improve the prospects for retail competition in Tasmania. We feel that retail competition in Tasmania will continue to be more heavily influenced by Hydro Tasmania's dominance, associated wholesale price risks and retail price regulation.

Depending on the precise design and route, *Project Marinus* may also provide opportunities to ***avoid future network investments*** in Tasmania and Victoria by locating close to new generation investments, such as in REZs. Other transmission upgrades offer similar opportunities and the issue becomes which can provide more for less?

Credible Options

The RIT-T requires all credible options to be assessed. TasNetworks say that the only two credible options they have identified are additional Bass Strait interconnection: one being the addition of a new single 'pole' HVDC interconnector of 600 MW capacity; the other the addition of two new 'poles' with a capacity of 600 MW each, or 1,200 MW in total. We find two options to be too narrow for such a large project and it does not seem to be consistent with the AER's position on the development of options. We believe that there exist other credible options that should be more thoroughly examined, such as a smaller link (perhaps with option value), use of the Basslink corridor and use of alternative convertor technology. The RIT-T should also consider the impacts of mainland options on *Project Marinus*, including those favoured by AEMO, as well as generation and demand side alternatives. In our view, non-network options need to be more actively sought out and seriously considered.

Limiting the choice to two options, both involving significant transmission investments, most likely by TasNetworks itself, is also questionable on the basis of competitive neutrality.

TasNetworks' current approach to the identification of credible options is too narrow and runs the risk of being based on Tasmanian electricity industry development objectives that will not necessarily serve the best interests of electricity consumers. The PSCR does discuss the modelling of sub-option but it is not clear what status these have.

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Market Modelling

Modelling will involve the two credible options compared to the base case. Sub-options will consider the location, HDVC technology choice, construction costs and timing. Assumptions and scenarios contained in the ISP will be used where possible. Least cost expansion modelling will be used to capture changes in the wholesale market. At the relatively high level of description provided in the PSCR, we can see no particular issues with this approach. However, as with any modelling, the devil may be in the detail. Adequate scrutiny of the modelling by consumer advocates is particularly important as the results will likely be the most critical determinant of the preferred option.

Consultation

Publication of the PSCR is welcome and the open approach to distribution of the report and the opportunities for consumers to engage on it are also welcome. However, we are not aware of any TasNetworks engagement with the small business sector or household consumers on the preparation of the PSCR. We note that the AER's recent Draft Decision on TasNetworks Regulatory Determination for 2019-24 found that TasNetworks had not undertaken adequate consultation on its proposed contingent projects, including *Project Marinus*. TasNetworks is now undertaking more consultations, which is welcome.

Consumer Benefits of *Project Marinus*

As mentioned earlier, the RIT-T requires only the assessment and quantification of aggregated market benefits. Hence, there is no requirement to separately quantify individual market benefits although, in our view, it would be good practice to do so. The measurement of aggregate market benefits, albeit important from a regulatory standpoint, is not so meaningful to consumers, who wish to understand the impact of major network investments on them, especially their electricity bills, although this is not required under the RIT-T. The PSCR does not mention any intent to quantify small business and household impacts but, in our view, it would be good practice to include them. The RIT-T process does not require the reporting of regional benefits and costs to consumers. Consumers in Tasmania and Victoria will be more interested in the impacts on their region, especially electricity prices and it would be good practice to quantify this in the RIT-T as ElectraNet has done. There is little comment in the PSCR on who would pay the network charges for *Project Marinus*. In our view, they should be allocated according to who benefits, including renewable energy owners, consumers in Tasmania and consumers in Victoria.

Risks

Consumers, especially those in Tasmania and Victoria, could bear significant risks from the construction of a second Bass Strait interconnector, especially if it operates as a regulated link. Risks include stranding or underutilisation of the asset, uncompetitive markets so that benefits are not passed through and risks from government intervention and regulation.

Next Steps

The next step in the RIT-T process is for TasNetworks to prepare a PSDR by 20 October 2019. It will then publish a PACR. TasNetworks is also undertaking a business case assessment of *Project Marinus* with an initial feasibility study to be completed by the end of 2018 and a final study 12 months later. Consumers should seek to engage on this.

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1 INTRODUCTION

TasNetworks is currently engaged in an assessment of the case for a second interconnector across Bass Strait. As part of this, it is applying the Regulatory Investment Test – Transmission (RIT-T) to the proposed project. The TSBC has requested Goanna Energy Consulting Pty Ltd to undertake a consumer focused assessment, including on Tasmanian small business, of the *Project Marinus* Project Specification Consultation Report (PSCR) published by TasNetworks. This is our resultant report to the TSBC – also made available to other interested consumer advocates. We welcome the opportunity to undertake this assignment for the TSBC.

1.1 SCOPE OF WORK

The scope of the work we are undertaking for this report involves:

- Ensuring that the project is likely to deliver benefits to electricity consumers (e.g., lower prices overall, enhanced energy security, more competition, improved energy market transition), especially Tasmanian and Victorian consumers and small businesses; and that market modelling robustly proves this.
- Considering the likely impact of the project on electricity prices for small businesses and household consumers in Tasmania and Victoria.
- Assessing and commenting on the net economic benefits and costs of the project, as defined by the RIT-T process.
- Assessing and commenting on the "identified need" for the project as defined under the National Electricity Rules (NER) and outlined in the PSCR, including (but not necessarily limited to) the delivery of market benefits through an increase in dispatchable generation, increased energy security, lower ancillary services costs, increased inter-regional trade and avoidance of future investment.
- Assessing and commenting on the assumptions underpinning the identified need for the project.
- Assessing and commenting on TasNetworks' proposed approach to modelling the market benefits and costs under the RIT-T and associated assumptions.
- Assessing and commenting on TasNetworks' proposed approach to the consideration of non-network alternatives.
- Assessing and commenting on the credible options identified in the PSCR.

1.2 METHOD & ASSUMPTIONS

In preparing this report we have undertaken a desk top study involving assessments of the PSCR and related documents, such as AEMO's Integrated System Plan (ISP), Hydro Tasmania's assessment of its *Battery of the* Nation initiative, Dr John Tamblyn's report into feasibility of a second Tasmanian interconnector, ElectraNet's RIT-T assessment for the *Riverlink* project, various AER documents on the application of the RIT-T, the COAG Energy Minister's recent review of the RIT-T, relevant parts of the National Electricity Rules and the application of Cost Benefit Analysis to public projects.

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2 BACKGROUND TO *PROJECT MARINUS*

In this section we briefly describe some of the background to *Project Marinus*.

2.1 THE PROJECT

Basslink is currently the only interconnector between Tasmania and the mainland. It links Tasmania physically to the National Electricity Market (NEM) via a 290 kilometre long High Voltage Direct Current (HVDC) undersea cable.[1]

Tasmania has significant wind resources that are attractive to renewable energy developers leveraging off the Federal Renewable Energy Target (RET) and a declining cost of wind generation. It also has significant hydro-electric resources, some of which are capable of being developed to provide significant amounts of pumped storage. These are potentially becoming more valuable as coal-fired generation on the mainland closes down and is replaced by renewable energy. The intermittent nature of wind and solar add to the potential future value of Tasmanian pumped storage as a provider of dispatchable capacity. However, this additional generation is only really valuable if it can reach the mainland market given the small size of the Tasmanian electricity market. Basslink may not be able to provide sufficient capacity.

This set of circumstances has given rise to consideration of the possible need for a second interconnector across Bass Strait. TasNetworks is examining the feasibility of this and has dubbed it *Project Marinus*.

Project Marinus would involve building new HDVC undersea interconnection of either 600 or 1,200 MW capacity. The PSCR describes this as follows:

- Option 1: A 600 MW monopole HVDC link, including associated alternating current (AC) transmission network augmentation and connection assets.
- Option 2: A 1,200 MW bipolar HVDC link, including associated AC transmission network augmentation and connection assets.

Regarding the route to be taken, the PSCR has identified several possible routes along the northern Tasmanian coast-line to Victoria, including the existing Basslink corridor. These are shown in **Figure 1** below.

The PSCR provides indicative costings. Option 1 is costed at $1.4-$1.9 billion and Option 2 at $1.9-$2.7 billion ($2018). Operating and maintenance costs are estimated at about $18 million per annum ($2018). Time from concept to commissioning is estimated at 5 years with a build time of 2 years.

2.2 THE PROCESS

As *Project Marinus* is being put forward as a regulated interconnector, the National Electricity Rules (NER) requires TasNetworks to apply the RIT-T to the proposal. RIT-T is

[1] Basslink can transmit up to 630 MW of electricity north for short periods and is rated to continuously carry 500 MW in either direction, although it is currently constrained to below this due to voltage stability issues Georgetown.

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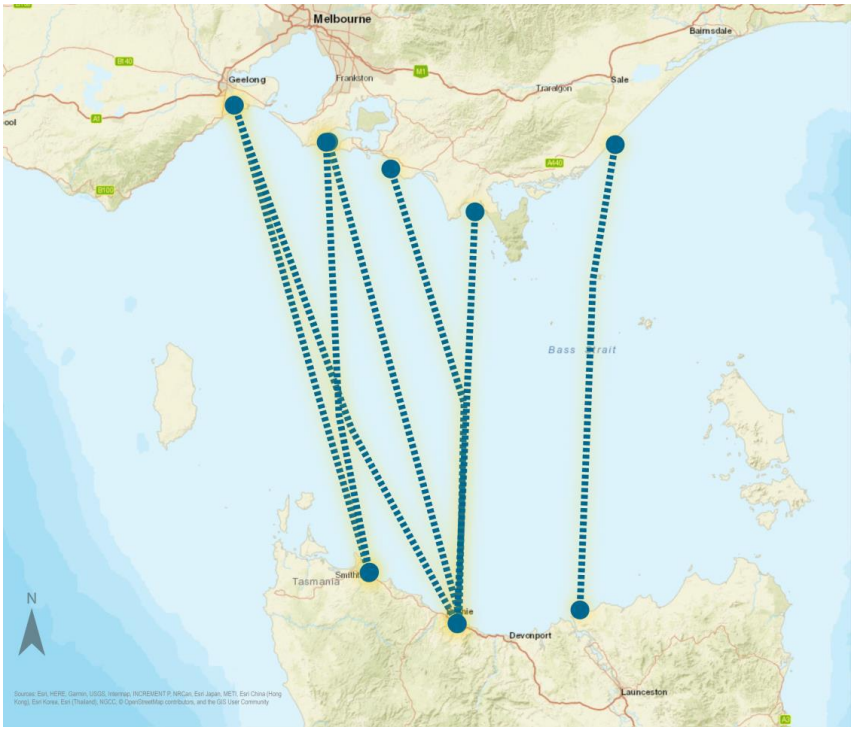
essentially a cost-benefit analysis designed to assess the project and ensure it provides net benefits to the electricity market. This is covered in more detail in Section 0.

Figure 1: Possible locations for a second interconnector across Bass Strait



Source: TasNetworks, *Project Marinus PSCR, Figure 7-1, p. 41*

2.3 The Tamblyn Report

The Federal and Tasmanian Governments previously commissioned a study into the feasibility of a second interconnector. The final report, by Dr John Tamblyn, was published in 2017.[2] The report concluded that positive net benefits could be achieved from the development of a second Tasmanian interconnector but only following construction of an additional interconnector from South Australia to the eastern states and it suggested further analysis be undertaken should this occur. It also noted that the substantial costs involved justified detailed study to determine accurately that benefits would exceed these costs.

2.4 *Battery of the Nation* Linkages

The *Battery of the Nation* initiative is about investigating and developing a pathway of future development opportunities - wind, hydropower expansion including pumped hydro, and more transmission and interconnection. Assessment by Hydro Tasmania is continuing.

Hydro Tasmania contends that this would position Tasmania to make a much greater contribution to the NEM. For the initiative to success, it would be dependent on the development of additional interconnection to the mainland and vice versa. However, this

[2] Dr John Tamblyn, *Feasibility of a Second Tasmanian Interconnector – Final Report*, April 2017.

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initiative still needs to be thoroughly tested in regards to the viability of its components, the amount of additional capacity available and their costs per MW. On the surface, the claims made by Hydro Tasmania about available capacity and its costs per MW appear to be too optimistic. Moreover, there are other mainland based competing investments involving pumped storage, large scale wind and solar, batteries and gas-fired generation that could be more economic and take precedence. Some of these also involve transmission upgrades including expanded links from South Australia to the eastern states.

2.5 *RIVERLINK* LINKAGES

ElectraNet is currently exploring options to facilitate energy transformation as South Australia moves from conventional generation and grid based power to a fleet of significant wind and solar generation, some gas backup, battery storage and more decentralised energy. At the same time, these options will seek to both improve system security and lower electricity prices. ElectraNet's PSCR was released in November 2016 and explored the technical and economic feasibility of a new interconnector, as well as an alternative non-network solution, as part of the RIT-T.

Its Project Assessment Draft Report was released in June 2018 and found that the construction of a new, high capacity interconnector between South Australia and New South Wales was the preferred option. A new interconnector would cost $1.5 billion across both states, and subject to receiving all necessary approvals, could be operating between 2022 and 2024. Net market benefits were estimated to be more than $1 billion over 21 years. Independent modelling estimated that annual residential customer bills would reduce by up to $30 in South Australia and $20 in New South Wales.

ElectraNet investigated variants of four credible options to address the identified need, comprising both a local South Australian non-network option (including both network and non-network components), as well as options involving new interconnectors to each of the three neighbouring NEM regions.

It is worth noting that ElectraNet's *Riverlink* proposal is both a rival and complimentary to *Project Marinus*. It is initially a rival as AEMO currently places a higher priority on *Riverlink* and the decision to proceed would likely mean that *Project Marinus* would not be needed until well after the middle of next decade at the earliest. Beyond construction it becomes complimentary in the sense that both AEMO and the Tamblyn Report have independently found that a new link from South Australia to the eastern states would need to be built before a second Bass Strait interconnector should be assessed in detail.

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3 THE RIT-T PROCESS AND CONSUMERS

In this section of the Report, we outline the RIT-T and the process to complete it. We also introduce the consumer impacts, briefly canvas shortcomings with RIT-T and discuss a consumer conundrum that can exist in relation to decisions on interconnector projects.

3.1 THE TEST AND PROCESS

RIT-T is essentially a cost–benefit analysis framework that transmission businesses must perform and consult on before making major investments in their networks to address an identified need to undertake a major regulated investment. When undertaking RIT-Ts, transmission businesses must give due consideration to alternative options compared to a 'base case' (e.g. business-as-usual) before identifying the best way to address their network's needs—called the 'preferred option'. The preferred option is the credible investment option which maximises the present value of the net economic benefit (that is, benefits minus costs) to all those who produce, consume and transport electricity in the relevant market. The RIT-T is intended to promote efficient transmission investment in the National Electricity Market (NEM) and ensure greater consistency, transparency and predictability in transmission investment decision making.

Bearing in mind that transmission businesses are monopolies, they have incentives to invest in ways and based on costs that maximise benefits to their business and are not necessarily in the interests of consumers of electricity. Moreover, they operate in such a way that, if their investment is inefficient or flawed (e.g., underused) they may still be able to recoup the costs of the investment through their charges as they are not subject to the discipline of rival firms in the market in which they operate.

Furthermore, the Australian Energy Regulator (AER) interprets the RIT-T in the context of the NEO. This is, *to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity*.

The RIT-T involves a three-stage process as outlined below:

- **Stage 1** involves the publication of a **Project Specification Consultation Report** containing, inter alia, the "identified need" for the project, its associated assumptions and technical characteristics, all "credible options", their technical characteristics and inter-regional impacts, non-material market benefits, construction timetable and indicative capex and opex. The report must be made available for consultation to all registered participants, AEMO and interested parties.
- **Stage 2** involves publication of a **Project Assessment Draft Report** within 12 months of the end of Stage 1 which must cover all credible options considered, a summary of and commentary on all submissions received, quantification of all material costs and benefits, a description of why benefits have been classified as not material, the net present value analysis for each credible option, market modelling and associated assumptions, and details of the preferred option and how it satisfies the RIT-T. The TNSP must make the project assessment draft report available to registered participants, AEMO and interested parties.
- **Stage 3** involves the **Project Assessment Conclusions Report**, which must include all the final information in the draft report as well as a summary of and response to

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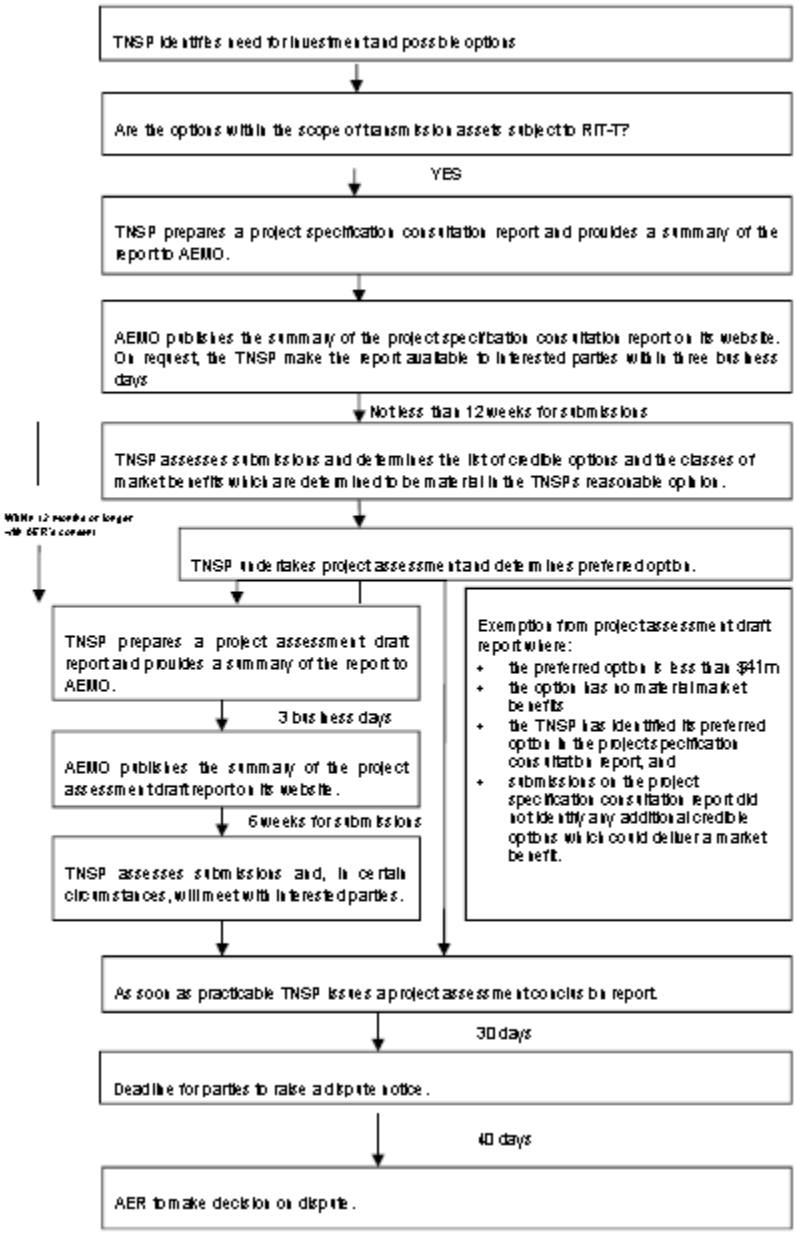
submissions received. The TNSP must make the conclusions report available to registered participants, AEMO and interested parties.

Figure 2 below has more detail on the process and its timelines.

Figure 2: Detailed outline of the RIT-T process



Source: AER, *Final RIT Application Guideline*, September 2017, p. 42

Importantly, this process is also intended to assist any parties with competing options to come forward.

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It is possible for interested partied to dispute to the AER the Conclusions Report, including in respect of the application of the RIT-T.

3.2 Consumer Benefits and Costs in the RIT-T

It is worth addressing the impact of the RIT-T process on consumers, including small business consumers and consumers in different regions. Even though the RIT-T is interpreted by the AER in terms of the long-term interests of consumers of electricity under the NEO, it does not directly address consumer impacts in terms of its impact on electricity prices or the like. Rather, the RIT-T measures net market benefits (identified market benefits minus project costs). Market benefits are the summation of *consumer* and *producer* surplus.[3]

The measurement of benefits in the RIT-T goes beyond just those accruing to consumers of electricity to also include the benefits that will accrue to producers of electricity and electricity transportation services. How then is this to relate to the NEO, which is only specified in terms of what is in the long term interests of *consumers* of electricity? The economic logic for the inclusion of producer benefits, or surplus, is that the welfare of all economic agents, consumers and producers, is what enhances total economic welfare in the electricity market. It is further assumed that at least some of the welfare enhancements accruing to producers will eventually find their way to consumers through the competitive process (and regulation of monopoly networks). The extent to which this happens in practice in the NEM is arguable given its competitive and regulatory gaps.

It should be noted that consumer and producer surplus are theoretical concepts that the RIT-T translates into estimates of the real world.

3.2.1 Market benefits

Material benefits typically included in a RIT-T are:

- Lower variable operating costs of supplying electricity to load, which may comprise fuel consumption costs, ongoing legal and regulatory compliance costs (such as carbon costs) and variable maintenance costs.
- Substituting high-fuel cost plant with low-fuel cost plant, leading to a reduction in the spot price of electricity.
- A reduction in voluntary load curtailment, valued by multiplying the quantity (in MWh) of avoided curtailment by consumers' willingness to pay (in $/MWh) for the electricity that is not voluntarily curtailed.
- A reduction in the amount of involuntary load shedding, valued by multiplying the quantity (in MWh) of avoided involuntary load shedding by a reasonable forecast of the value of electricity not shed to consumers (in $/MWh).
- A delay in the commissioning of a new plant (which reduces the present value of the resource costs incurred to meet demand), or to other reductions to parties' costs, represents a positive market benefit and *vice versa*.
- A delay in the timing (or more efficient configuration) of other investments to be made involuntary load shedding (or for) the transmission business in the future.

[3] The total benefit of a credible option includes the change in: *consumer surplus*, being the difference between what consumers are willing to pay for electricity and the price they are required to pay; and *producer surplus*, being the difference between what electricity producers and transporters are paid for their services and the cost of providing those services (excluding the costs of the credible option).

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- Decreased network losses are a positive market benefit, while increases are a negative benefit.
- Reduced ancillary services costs are a market benefit, while increases are a negative benefit.
- 'Competition benefits', which take into account the likely impact of a credible option on the bidding behaviour of generators (and other market participants) that may have a degree of market power relative to the base case.
- An 'option value', which refers to a benefit that results from retaining flexibility in an investment that is irreversible (sunk), which is often the case in large transmission investments, is treated as a market benefit.

3.2.2 Costs

Costs are defined in the RIT-T as the present value of the direct costs of a credible option.

The determination of costs must include the following classes of costs:

- Costs incurred in constructing or providing the credible option.
- Operating and maintenance costs over the operating life of the credible option.
- The costs of complying with any mandatory requirements in relevant laws, regulations and administrative requirements.

A TNSP is not required to separately quantify these costs.

It should be noted that there may be a material degree of uncertainty regarding costs at the time a TNSP undertakes the RIT-T assessment due to both the assessment usually taking place well before actual commissioning and given the long lived nature of RIT-T assets.

3.3 RIT-T Shortcomings

Whilst its application to regulated investments is useful to consumers, the RIT-T has a number of shortcomings that do not guarantee that the NEO, i.e. the long term interests of electricity consumers, will always be satisfied through its application:

- The inclusion of producer surplus, as well as consumer surplus, whilst technically correct, when combined with imperfect market structures, especially in generation and transmission, works against the interests of electricity consumers.
- The partial equilibrium analysis contained in the RIT-T, which limits impacts to the electricity market and does not consider economy wide impacts is constrained. This increases in importance with very large projects with widespread benefits.
- The current RIT-T provides limited formal access for consumers who are not explicitly mentioned but included through the broader "interested party" category with more limited rights. Given that consumers are the intended beneficiaries of any RIT-T and will disproportionately bear the costs of poor investment choices, they ought to have more formal and equal rights. The same applies to competing project proponents. The AER has recently proposed some changes to the RIT-T guidelines that would emphasise the importance of early engagement, the provision of clear,

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user-friendly information and understanding broader consumer views about impacts.[4] Nevertheless, outstanding issues remain.

- Only transmission augex (augmentation capital works to extend or strengthen the network) over $6 million are required to undertake a RIT-T. However, repex (replacement capital expenditure) can also involve significant investments and currently forms an increasing element of capex, with the AER proposing to also include repex over the RIT-T threshold in the RIT-T.
- Any public cost benefit analysis will have shortcomings, such as being an approximation to the real world and data deficiencies. Nevertheless, for regulated projects it is still preferable to the alternative of no public analysis.
- The RIT-T process does not guarantee that all credible competing options will be included. The process initially relies on proponents (usually network businesses) to identify these options. They may not have the information or incentive to do so. Whilst the public nature of the process is intended to allow other options to come forward, there is no guarantee that this will happen.
- The RIT-T is, by nature and design, a drawn out and complex process. This is due to a range of factors including the significant investments being considered, the information and procedural requirements of the RIT-T, its multiple stages and the time for consultation. This raises the issue of whether it will deliver timely outcomes.
- The RIT-T requires consideration of a list of market benefits and costs which appear comprehensive but some are difficult to measure. For example, competition benefits are generally harder and more complex to measure, requiring resort to NEM spot market modelling. These tend to be treated as not material or it is argued they are counted elsewhere, as TasNetworks currently proposes to do for *Project Marinus*.
- Consumer benefits in the RIT-T are aggregated. Proponents are not required to present benefits as they accrue to different types of consumers, e.g., small business or household, or to demonstrate how consumers in NEM regions will benefit. However, consumers are often more interested in how their group or region will be impacted and electricity prices in the NEM (retail, wholesale and network) are regionally based.
- As in any long term assessment that is seeking to forecast into to the future, typically for 20 or more, costs and benefits are not known with certainty. This creates uncertainty and risk, which is usually passed on to consumers. We return to this theme in Section 6.

3.4 The Interconnector Conundrum

Although interconnector capacity between NEM regions is far less than generation capacity, these links between NEM regions can play an important role in facilitating trade between them, keeping prices lower and helping to ensure system reliability at times of system stress. Indeed, the ability of interconnectors to do this was a significant driver behind the creation of the NEM. Interconnectors can also be seen as facilitators of inter-regional competition to and a constraint on market power. Their role may become more important as the NEM transitions to new forms of technology.

[4] See AER, *Explanatory Statement: Draft Revisions of the Application Guidelines for the Regulatory Investment Tests*, July 2018, section 5.2, pp. 22-23.

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With one exception, Basslink, all of the NEM interconnectors are regulated. Basslink is (technically speaking) unregulated, although its strong dependence on Hydro Tasmania (itself a dominant generator in Tasmania) limits its ability in contracting and to operate as a 'competitor' to Hydro Tasmania.[5]

The regulated status of interconnectors and the competitive market status of generators (and demand side response options) create somewhat of a conundrum, given the competitive tension between these options. This competitive tension can be useful to consumers (as it creates additional supply opportunities and can constrain market power) but it can also be costly. For example, incumbent generators (and gentailers) will usually mount opposition to interconnector expansions, particularly if they perceive this to create additional competition in their market. Such opposition has been a powerful force in past interconnection proposals.

On the other hand, a relatively unconstrained addition of new or upgraded interconnectors is also not in the interests of electricity consumers. Proponents of such investments are mostly monopoly providers, often regulated and sometimes still government owned. As such, they are less constrained in having to make efficient investment decisions, can more easily capture the benefits of such decisions without having to share them with consumers and can pass risks on to consumers more easily.

The complexity and long term nature of interconnection and competing generation options often makes it more difficult for consumers to express a well informed preference for one or the other.

Consumer preference for such options is further complicated by the imperfect nature of generation competition in the NEM on the one hand and the imperfect nature of the regulation of monopoly transmission networks on the other.

This has led to suggestions that all transmission interconnectors should be market and entrepreneurially based so that all options can compete more equally and without the need for inevitably imperfect regulation.

This discussion suggests that while the RIT-T is important to consumers it can also present them with a conundrum.

[5] Two other interconnectors, Directlink (between Queensland and NSW) and Murraylink (between NSW and SA) commenced operations as 'market' (or unregulated) transmission interconnectors, commercially motivated by arbitrage opportunities between these regions but subsequently converted to regulated status, presumably because this was commercially more attractive.

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4 TasNetworks' Project Specification Consultation Report

This section comments on key aspects of TasNetworks' *Project Marinus* PSCR released in July, including the identified need for the project, the approach to identifying its credible options, specification of proposed market benefits (and unaccounted for benefits) and the market modelling approach proposed.

As a general comment, TasNetworks' publication of the PSCR is welcome. Its distribution of the report, as well as providing opportunities for consumers to engage on it, is also welcome.

4.1 The Identified Need for *Project Marinus*

TasNetworks has defined the Identified Need for *Project Marinus* as:

> *The characteristics of customer demand, generation and storage resources vary significantly between Tasmania and the rest of the NEM. Increased interconnection capacity between Tasmania and the other NEM regions has the potential to realise a net economic benefit by capitalising on this diversity.*[6]

According to the AER's Guidelines an Identified Need:

> *"… is to be expressed as the achievement of a desired objective or end …."*[7]

Strictly speaking, the Identified Need specified by TasNetworks fulfils this. It also has the virtue of being simply expressed, but we find it lacks specificity. This contrasts to the Identified Need set out in ElectraNet's PSCR for *Riverlink*, which specifically linked the Identified Need to several benefits.[8] In addition, it also set out the Identified Need in definite terms rather than the more qualified "potential" term used by TasNetworks. Consumers in Tasmania and Victoria should seek to have TasNetworks express its Identified Need with a high degree of certainty as they will likely bear the risks of any poor decision making.

Bearing this in mind, TasNetworks' Identified Need is firmly linked to the realisation of 'market benefits' and needs to be assessed robustly on the basis of the market benefits it will deliver compared to business-as-usual and alternative options.

The wording of the Identified Need proposed by TasNetworks relies on economic benefits flowing from the diversity of generation in Tasmania compared to other parts of the NEM. In turn, this relies to a large extent on Tasmania's potential to develop pumped storage under the 'Battery of the Nation' concept proposed by Hydro Tasmania and additional on-island wind generation using the considerable wind resources in Tasmania.

4.2 Related Developments

Below we comment on several key developments related to *Project Marinus*, namely AEMO's ISP, Hydro Tasmania's *Battery of the Nation* initiative and AEMO's identification of NEM Renewable Energy Zones (REZ).

[6] TasNetworks, *Project Marinus* Project Specification Consultation Report, July 2018, p. 19.
[7] AER, *Regulatory Investment Test for Transmission Application Guideline*, 18 September 2017, p. 7.
[8] ElectraNet, *South Australia Electricity Transformed, RIT-T Project Specification Consultation Report*, 7 November 2016, p. 15.

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4.2.1 AEMO's Integrated Systems Plan

Governments accepted a recommendation in the Finkel Review[9] that AEMO should produce an "integrated grid plan" and in 2018 AEMO published its first ISP, which sets out AEMO's long term view on transmission investments needed in the NEM. TasNetworks proposes to make use of the ISP in the RIT-T process for *Project Marinus* wherever possible. However, we note that a second interconnector between Tasmania and the mainland does not figure large in AEMO's ISP. In fact, *Project Marinus* appears at the bottom of a list of potential measures to be implemented by the mid-2020s (labelled *Group 2*) with a commitment from AEMO to merely "*continue to work with project proponents on a design for transmission networks to support strategic storage initiatives in New South Wales and Tasmania, to deliver the overall lowest-cost solution for customers.*"[10]

AEMO further observed that:

> *"AEMO's least-cost modelling did not automatically select additional interconnection to the Tasmanian region (MarinusLink) in the Base development plan, with the analysis suggesting alternative energy storage developments (based on the input assumptions, including renewables and storage, and the least-cost modelling approach taken). The merits of* Battery of the Nation *and associated new interconnection to Tasmania will largely depend on the actual costs of energy storage in Tasmania relative to those on the mainland."*[11]

The current ISP is therefore not a firm basis for the further development of *Project Marinus* and additional information would need to be forthcoming to overcome this gap. This alone should cause Tasmanian and Victorian electricity consumer to treat the project with caution, at least for the time being.

We note that AEMO has indicated in its ISP that will seek further information about *Project Marinus* and Hydro Tasmania's *Battery of the Nation* initiative in developing its ISP. TasNetworks indicates in its PSCP that refinement of some ISP assumptions and data is likely to demonstrate value from additional interconnection between Victoria and Tasmania under a range of plausible scenarios. TasNetworks has said that it will work with AEMO to refine the key inputs and modelling. This should be both welcomed but also closely monitored by Tasmanian and Victorian electricity consumers.

4.2.2 *Battery of the Nation* Concept

Hydro Tasmania is presently investigating its *Battery of the Nation* initiative, which would deliver additional generation based on pumped storage, augmenting existing hydro assets and additional wind generation. It has published its Stage 1 assessment which claims that there is 4,800 MW of pumped hydro "opportunity" which is "very competitive" at a little over

[9] *Independent Review into the Future Security of the National Electricity Market*, June 2017, available at https://www.energy.gov.au/government-priorities/energy-markets/independent-review-future-security-national-electricity-market.
[10] AEMO, *Integrated Transmission Plan*, 2018, p. 85.
[11] AEMO, *Integrated Transmission Plan*, 2018, p. 88.

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$1 million per MW.[12] The initiative still needs to be thoroughly tested in regards to the viability of its components, the amount of additional capacity available and their costs per MW. On the surface, the claims made by Hydro Tasmania about pumped hydro capacity and its costs per MW appear to be too optimistic. If pumped hydro capacity has to be scaled back, this would place more emphasis on intermittent wind generation.

If the above proves to be the case, it would have a material impact on the economics of *Project Marinus* and the market benefits it provides. Complex environmental and planning issues may also arise. To maintain credibility, in our view it is important that the *Battery of the Nation* initiative be subjected to thorough external scrutiny.

The *Battery of the Nation* initiative could also be susceptible to non-commercial investments, government involvement/funding or subsidies. The common ownership of TasNetworks and Hydro Tasmania could also be of concern.

In addition, there are competing sources of generation under consideration, including the Snowy 2.0 pumped storage proposal, bespoke pumped storage and a significant number of renewable energy projects (wind and large scale solar) in Victoria and South Australia. Some are supported through government policies such as the RET and Victorian Renewable Energy Target (VRET). AEMO expects that 5,200 MW of new renewable generation will be installed in the Western Victorian and Murray Valley Renewable Energy Zones by 2025. Considering that these projects are closer to market, and closer to existing and less costly transmission infrastructure, the significance of the market benefits from *Project Marinus* may be impacted. The RIT-T for *Project Marinus* needs to fully consider these alternatives.

For Tasmanian power consumers, including small business, there is also the impact of the *Battery of the Nation* initiative on Hydro Tasmania's already dominant market power to consider. If, as seems likely, most of the additional capacity is owned by Hydro Tasmania this would enhance and further entrench its market power. This could keep Tasmanian electricity prices higher, increase price volatility and prevent new entry into electricity retailing in Tasmania.

4.2.3 Renewable Energy Zones

Currently there is significant renewable energy capacity committed or proposed for the NEM. It is by far and away the main source of new generation with a few gas fired projects and no coal-fired projects. Policy uncertainty is a key driver for this mix of new generation.

Looking forward, AEMO's modelling shows that, to replace energy produced by the 14,000 MW of retiring coal-fired generation up to 48,000 MW of new renewable generation would need to connect to the NEM by 2040 (due to a lower capacity factor for renewables). This mainly comprises wind, solar and pumped storage. Currently there is 4,800 MW of variable renewable generation already installed, 3,900 MW committed, and 34,900 MW proposed. Clearly, such a large increase in renewable generation would require major transmission works, and AEMO has found that an integrated least cost approach to planning, focused on connecting new renewable generation to existing transmission lines, would be more cost

[12] Hydro Tasmania, *Battery of the Nation: Analysis of the Future National Electricity Market*, April 2018 at https://www.hydro.com.au/docs/default-source/clean-energy/battery-of-the-nation/future-state-nem-analysis-full-report.pdf?sfvrsn=25ce928_0.

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effective than an *ad hoc* approach. It identified 34 REZs spread across the NEM in its ISP to support this. Three REZs are located on mainland Tasmania.

The PCSR points out that Tasmania has an abundance of locations with high quality wind resources that typically coincide with areas of relatively low population density, meaning less likelihood of community opposition and also a lower land costs. On the other hand, some mainland REZs may offer similar benefits, whilst also being closer to transmission lines.

The PSCR also points out that Tasmania is able to use interconnection to arbitrage on price differences. Thus, it can export power to the mainland at peak times of the day, when power is scarce in summer, or if there are unplanned outages. Alternatively, it is able to import power when it is scarce in Tasmania due to drought or some other supply constraint. However, this is also the case with other NEM interconnectors, which may offer more cost effective alternatives, a view currently supported by AEMO.

The impacts of Tasmanian REZs will need to be objectively and thoroughly assessed in the RIT-T to determine the priority given to Tasmanian REZs.

4.3 Proposed Market Benefits

The identification and assessment of market benefits is central to the cost-benefit approach of the RIT-T as discussed in Section 3. The PSCR identified the five market benefits discussed below. We also comment on TasNetworks' intended approach to benefits classified as no material and to including other possible benefits normally outside the RIT-T. Given the early stage of the assessment process there is little, if any, analysis in the PSCR to support these benefits. We would expect that TasNetworks will undertake a rigorous and detailed assessment in the next stage of the RIT-T.

4.3.1 Access to More Diversified Dispatchable Tasmanian Generation

The outlook for the future development of generation in the NEM is an important aspect of the Identified Need for *Project Marinus*. The underlying conditions behind the PSCR, are based on the expected replacement of aging coal plant, a need to meet Australia's Paris commitment, a reduced cost of renewable technologies and less predictable demand with more distributed generation. Nevertheless, circumstances can change, even over the approval, development and commissioning phase of an interconnector project let alone the 20 or so year outlook of the RIT-T. Consumers in Tasmania and Victoria could be exposed to a poorly constructed generation outlook and this process must be robust.

The PSCR points out that projected rapid growth in intermittent renewable generation will create opportunities to derive value from greater interconnection between regions, including access to more diversity in renewable resources, including smoothing the intermittency of renewable generation. Being able to trade electricity across the additional interconnector to take advantage of price differentials in Tasmania and Victoria will be key to the benefits delivered to consumers.

As the PSCR points out, a problem inherent in the high penetration of wind and solar is the possibility of excess generation – and possible curtailment – when the wind is blowing strongly or the sun is shining, and then possible generation shortages, which creates the need for high cost peaking generation. Tasmania, however, is able to exploit its hydro storages to "soak up" the excess renewable generation by holding back water, and then

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make use of the stored water. Generator operating cost reductions (compared to mainland gas generation) and capital cost deferrals (through the use of Tasmania's hydro assets) is also mentioned. However, Tasmania is not unique in being able to provide these benefits, with Snowy 2.0 and utility scale batteries, for example, also in a position to do so. Moreover, Tasmania's hydro assets and transmission will require significant investment to offer expanded services.

It will require robust in-depth analysis for the *Project Marinus* RIT-T to demonstrate these and to what extent they outstrip alternatives. For example, we note that other transmission investments, such as those supported in AEMO's ISP are also capable of delivering diversity and the market benefits that go with it.

Turning to the outlook for generation in Victoria (the connecting region for *Project Marinus*), the PSCR points out that the Victorian Renewable Energy Target (VRET) will deliver about 4,800 MW of additional renewable generation to Victoria, almost certainly crowding out some Tasmanian renewable generation. The PSCR then says that:

> *"As a result, the growth in wind generation in Tasmania could be somewhat lower than would otherwise be the case."*[13]

The PSCR observes that the higher growth in Victorian wind may lead to greater price volatility in that region and so increase the value of interconnector 'arbitrage', particularly if price volatility prompts the closure of more coal-fuelled generation. However, it also acknowledges that mainland storage (e.g., Snowy 2.0, bespoke pumped storage or battery) will act to dampen the volatility upon which storage-based arbitrage relies.

This limits the market benefits from *Project Marinus*, including to Victorian electricity consumers, and castes greater doubt over the economics of the project. Nevertheless, TasNetworks contends that the key assumption underpinning the Identified Need is that the costs, efficiency and profile of generation in Victoria will be sufficiently different from Tasmania to deliver benefits from increased interconnection between the two regions. They intend to subject these matters to detailed modelling in the next stage of the RIT-T.

4.3.2 Improved Energy Security and Supply Reliability

The PSCR argues that a second Bass Strait interconnector would reduce the expected costs of an unplanned Basslink outage. It further points out that these cost reductions benefit Tasmania through long term energy security and Victoria (and other NEM regions) by guaranteeing access to Tasmanian dispatchable generation during critical summer peaks.

Whilst there is truth in this argument, it is also possible for alternative options on the mainland to provide the same levels of energy security and supply reliability, including stronger interconnectors, additional generation and demand response. They may do so at less cost. On the surface, it appears that energy security and reliability impacts from *Project Marinus* may be more beneficial to Tasmanian consumers, although even here we note that the Tasmanian Energy Security Taskforce (TEST) found that Tasmania's energy security could be protected by measures that do not rely on a relatively costly second interconnector (e.g., more conservative water resource management, gas generation, more conservative operation of Basslink and an additional 700 MW of on-island generation).

[13] TasNetworks, *Project Marinus PSCR*, July 2018, p. 30.

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4.3.3 Reduced Ancillary Service Costs

The PSCR argues that a second interconnector could provide a combination of ancillary services, including Frequency Response, network support and control ancillary services and system restart. We agree that this should be assessed as a potential market benefit. Determining the ability of the project to do this and its value depends on matters such as location of the link, the type of technology used, the future demand for such services and the cost of alternative sources of ancillary services in both Tasmania and Victoria. On the surface, it appears that Tasmanian electricity consumers may be able to derive such benefits, whereas those in Victoria would have alternative sources more readily available. However, even in Tasmania there would be alternative sources – existing or new – and the cost of these needs to be assessed as would the need for additional ancillary services.[14] Alternatives would include hydro, gas generation, Basslink, demand response and batteries.

4.3.4 Increased Inter-regional Market Access

The PSCR argues that a second interconnector would increase the reliability of the Tasmania to Victoria inter-regional flow path, thereby increasing the firmness of Tasmanian generators' access to mainland regions and vice versa. It points out that this has two major market benefits:

- Reducing contract costs between Tasmanian and mainland generators and retailers.
- Increasing the possibility of retail competition in Tasmania due to the increased certainty of a new-entrant retailer in Tasmania being able to contract with mainland generators.

However, the benefits of reduced contract costs being passed on to consumers will depend on the extent of competition in the market. Victorian retailers and gentailers may be more likely to pass on some of these benefits but the situation facing Tasmanian consumers is more problematic. The dominant positions of Hydro Tasmania in generation and Aurora in serving smaller customers may well limit any consumer benefits. In any case, the current Government's approach is to cap retail prices at CPI and is reviewing wholesale price regulation with a view to pegging these to the Tasmanian cost of production.

Regarding an increased possibility of retail competition emerging in Tasmania, in our view this is likely to be more heavily influenced by the dominance of Hydro Tasmania, the associated difficulties with new retailers managing wholesale price risk and the Government's future appetite for regulating pricing.

4.3.5 Avoiding Future Network Investment

Depending on the precise design and route chosen *Project Marinus* may also provide opportunities for more efficient connection and power transfer for future generation developments in Tasmania and Victoria. Such augmentations could conceivably provide part of the transmission capacity required to develop an REZ. This would result in cost savings by avoiding the need for future network augmentations. Other transmission upgrades offer similar opportunities and the issue is which can provide more for less?

[14] We note that the Tamblyn Report concluded that there would be sufficient synchronous generators to provide the necessary FCAS without the need for additional interconnection with Tasmania.

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4.3.6 Excluded Benefits

The RIT-T process allows proponents to exclude categories of market benefits they believe not to be material but they must provide adequate justification. TasNetworks currently proposes to treat competition benefits in this way noting that estimating competition benefits requires time and computationally intensive simulations using strategic bidding algorithms that for previous interconnector assessments did not identify material benefits. However, they also say that they intend "to investigate screening methodologies to determine whether there are likely to be material competition benefits before embarking on any detailed modelling." Consumer advocates should keep this in mind for the next stage of the RIT-T.

4.3.7 Other Benefits

The PSCR notes that there may be other benefits from a second Bass Strait interconnector not listed under the RIT-T rules. TasNetworks intends to consider such benefits in its Initial Feasibility Report and may then apply to the AER to have any additional benefits included in the RIT-T (as it is permitted to do). The TSBC and other interested consumers should ensure that they are given an opportunity to assess and comment on any such benefits.

We also note that the PSCR mentions that other classes of market benefits need to be agreed to by the AER in writing before the date the PSCR is made available. This seems to indicate that TasNetworks can no longer seek to have other benefits included in its RIT-T?

Mention is made in the PSCR of benefits to regional economies in Tasmania and Victoria during the development, construction and operation of a second interconnector and that additional benefits identified may result in third party funding, which could bridge any potential 'gap' between the market benefits and project costs.

Regional benefits can be problematic in terms of the RIT-T. Rigor and public scrutiny are needed to ensure consistency with the NEO.

The PSCR mentions the possibility of third party funding for the project. Private sector funding would be a matter for the parties involved but should be commercially based and without conferring any legislative or mandated advantages. The commitment of public funds should be based on proven evidence that they will be well spent.

4.4 Approach to Credible Options

The RIT-T requires a proponent to identify and assess all credible options that would satisfy the project specification. In the PSCR TasNetworks say that the only credible options they have identified relate to the construction of additional Bass Strait interconnection. They propose that one credible option is the addition of a new HVDC interconnector 'pole' with capacity of approximately 600 MW, and that another credible option is the addition of two new 'poles' with capacity of 600 MW each, or 1,200 MW in total. Their base case will be Basslink remaining as the only interconnector, which seems appropriate as a base case.

This is a very narrow approach to the identification of credible options for this project – which involves substantial investments – especially so early in the assessment process. TasNetworks should, in our view, provide a broad sweep of possible options which can be narrowed down as the assessment proceeds. A narrow approach increases the likelihood that a costly option will be preferred because competing options were not included, with consumers in Tasmania and Victoria bearing the additional costs. It is not for us (or

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consumers) to propose specific alternatives but they could conceivably be drawn from generation, alternative transmission upgrades and demand response.

In relation to transmission, for example, we note that TasNetworks has dismissed the possibilities of developing a smaller link (say 300 MW) on the basis that it lacks of economies of scale. This may turn out to be the case, but cost savings from a larger link may not match economic benefits. It has similarly dismissed, without any detailed analysis, the option of using the existing Basslink corridor for a second cable on the basis that it would offer less energy security but done so without any hard analysis.

TasNetworks has also taken a quite prescriptive approach to the form of technology to be used favouring only HVDC links (likely to prove correct) and Voltage Source Converter (VCS) technology rather than the older Line Commuted Converter (LCC). The PSCR focuses on the advantages of VCS and notes the choice is "not expected to have a significant impact on the net market benefits" but provides no cost comparison.

We believe that TasNetworks needs to revisit its approach to the identification of credible options with a view to adding to them and that it needs to publicise and actively seek out alternatives from other potential developers, including non-network alternatives (addressed further in Section 4.4.1).[15] At this stage TasNetworks appears to have done little to broaden the scope of credible options other than saying that they will model other options as needed.

This narrow approach is possibly also linked to the lack of specificity in the proposed Identified Need, which focuses on diversity of supply. Such a definition will inevitably bias the application of the RIT-T towards favouring interconnection to export power from Tasmania to the mainland.

In our view, credible options do not just involve the construction of a second Bass Strait interconnector but could involve mainland interconnection to support pumped hydro (Snowy 2.0 or bespoke), large scale batteries, or additional renewables and demand response. Some could involve lower costs (lower cost resources, closer to markets, close to large transmission networks, do not need expensive DC undersea links to be built). Indeed, the PSCR acknowledges this and refers to the fact that AEMO has recommended several projects with priority over *Project Marinus* on the basis of its ISP modelling.[16]

The main objective of applying the RIT-T should not be how to develop regulated interconnectors that allow more renewable energy to be exported from Tasmania *per se*, but how interconnection can deliver maximum benefits to electricity consumers in the NEM, including Tasmania and Victoria. TasNetworks' current approach to the identification of credible options is too narrow and runs the risk of being based on Tasmanian electricity

[15] Somewhat confusingly the PSCR then says at p. 38 that:

> *"Our intended RIT-T modelling methodology will look for the lowest cost option to supply electricity. This will include the development of mainland generation and storage options in the absence of increased Bass Strait interconnection, should this be cheaper. In effect, therefore, TasNetworks' approach will therefore inherently consider the competitive market alternatives with the construction of additional interconnection."*

[16] TasNetworks, *Project Marinus PSCR*, July 2018, p. 38.

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industry development objectives that will not necessarily serve the best interests of electricity consumers.

We note that the "AER is of the view that a TNSP has considered a sufficient number and range of credible options where the number of credible options being assessed regarding a particular identified need is proportionate to the magnitude of the likely costs of any credible option."[17] We expect that the AER would require TasNetworks to include significantly more than the current two credible options proposed in the PSCR for an investment the size of *Project Marinus*.

The PSCR does discuss the modelling of sub-option but it is not clear what status these have. Are they alternative credible options or just alternative modelling scenarios for the two credible options? TasNetworks should clarify this.

The RIT-T process is also intended to ensure the application of competitive neutrality principles. The PSCR does not mention this in relation to the identification of credible options but limiting the options to two projects for TasNetworks to likely develop regulated interconnectors would not seem to satisfy competitive neutrality.

4.4.1 Non-network Options

RIT-T assessments are required to explicitly consider possible non-network solutions as alternatives to interconnector investments. This ensures that regulated interconnectors are not the only options considered and also supports the principle of competitive neutrality.

The PSCR discussion of non-network solutions recognises that a broad interpretation of the Identified Need for the *Project Marinus* RIT-T would consider many alternative projects – network and non-network – and refers to those projects in the AEMO ISP that take precedence over *Project Marinus* because they show greater market benefits. TasNetworks intend that its methodology will look for the lowest cost option. This will include the development of mainland generation and storage options, should this be cheaper. However, its narrow approach in limiting credible options to only two Bass Strait interconnector choices seems to work against this and is somewhat confusing.

The PSCR then goes on to say that TasNetworks is "not aware of any non-network alternatives which could increase the inter-regional transfer capacity between Tasmania and Victoria above these limits [of Basslink].[18] As stated earlier, we believe that TasNetworks has not gone far enough in identifying non-network options and needs to take a more active role in doing so for the second stage of the RIT-T.

4.4.2 Market Based Upgrade

TasNetworks have indicated in the PSCR that they are open to the possibility of a market based owner and operator of a second Bass Strait interconnector, including the possibility of a hybrid regulated and unregulated 1,200 MW upgrade. It is worth noting that market based interconnectors do not need to satisfy the RIT-T but the regulated element of a hybrid approach would.

[17] AER, *Regulatory Investment Test for Transmission Application Guideline*, 18 September 2017, p. 11.
[18] TasNetworks, *Project Marinus PSCR*, July 2018, p. 38.

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4.5 Market Modelling Approach

In relation to modelling, the PSCR establishes that this will involve the two credible options proposed compared to the base case. Sub-options will consider the location, HDVC technology choice, construction costs and timing. The option delivering the highest net market benefits will be selected. Different generation and storage outcomes will be applied to each option and sub-option, drawn from the ISP. It is acknowledged that assumptions regarding new interconnector capacity between other regions will affect the benefits associated with increased interconnection between Tasmania and Victoria.

TasNetworks intends to rely on assumptions and scenarios contained in the ISP where possible but use more detailed modelling and scenarios to test the robustness of any benefits to uncertainty. There is mention of the cost of new entry, including pumped storage and differentiation of resource quality, such as the differing capacity factors of wind and solar in different regions, the size of energy storage schemes, modelling of the hydro system and the timing of the retirement of thermal generation.

The PSCR suggest that most of the benefits of increased interconnection are expected to come from changes in the wholesale electricity market (e.g., avoided capital investment and reduced fuel costs) and that least cost expansion modelling[19] best addresses this. Generation developments will include (as a minimum) gas, wind, solar and storage (hydro and battery). Interconnector expansions will be considered based on the ISP. Other modelling and estimating techniques will be used when appropriate to identify other benefits.

At the relatively high level description provided in the PSCR, we can see no particular issues with this approach. However, as with any modelling, the devil may be in the detail. Issues such as how the model is specified, the choice of a discount rate, the choice of scenarios, assumptions and parameters used as input, and their values, will be critical and should be thoroughly assessed to ensure they are robust. We expect that sensitivity analysis will be carried out on critical parameters. Adequate scrutiny of the modelling by Consumer advocates is particularly important as the results will likely be the most critical determinant of the preferred option.

4.6 Consultation

As a general comment, TasNetworks' publication of the *Project Marinus* PSCR is welcome and its open approach to distribution of the report and presenting opportunities for consumers to engage on it is also welcome. We note that TasNetworks has published the report on its website, called for submissions, contacted consumer advocates about it and undertaken a range of public forums in both Tasmania and Melbourne. They have also been open to less formal engagement on the report. The TSBC and Goanna Energy have both been included in these consultation opportunities. As such, we believe that TasNetworks has been prepared to be flexible in its approach to consultation.

However, we are not aware of attempts by TasNetworks to engage with the small business sector on the preparation of its report and note that the AER's recent Draft Decision on

[19] The least cost expansion model is an optimisation model that has the objective of finding the least cost mix of generation and storage technologies in the NEM. The model determines investment and retirement decisions that result in lowest cost of generation over the modelling horizon, subject to operational and economic constraints that reflect the operation of the physical electricity market.

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TasNetworks Transmission and Distribution Determination for 2019-24 found that TasNetworks had not undertaken adequate consultation on its proposed contingent projects, including *Project Marinus*. TasNetworks is now undertaking additional consultations, which is welcome.

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5 CONSUMER IMPACTS

In this section we comment on the consumer impacts of the *Project Marinus* proposal.

5.1 OVERALL

As mentioned earlier, the RIT-T requires only the assessment and quantification of aggregated market benefits. Hence, there is no requirement to separately quantify individual market benefits in the RIT-T although, in our view, it would be good practice to do so.

Broadly speaking the market benefits outlined in the PSCR and the costs associated with the construction and operation of a second interconnector would impact consumers either directly or indirectly. Many of the market benefits would accrue through their impact on wholesale prices, for example, reductions in fuel costs, access to a more dispatchable generation, or lower ancillary services charges. Measurement of other benefits is more problematic, such as a more reliable and secure supply of electricity, which benefits consumers through less interruptions (measured by the estimated value they place on continuous supply) but can also impact prices through more liquid contracting and lower risk to retailers and generators.

The measurement of market benefits, albeit important from a regulatory standpoint, is not that meaningful to consumers who wish to understand the direct impact of major network investments on them, especially on their electricity bills, although this is not a requirement under the RIT-T.

On the costs side, capital costs are certain to be large and will be accrued up front. The smaller, but still significant operating costs component, is spread more evenly over the life of the project. Consumers will pay these costs, roughly in proportion to how they benefit, through the Transmission Use of System component of their network charges. In our view, other beneficiaries, such as renewable generation developers, should also pay costs in proportion to the benefits they derive from the project. This is important as a second Bass Strait interconnector is very likely to be of significant benefit to renewable energy generators seeking to export from Tasmania to the mainland. Whilst consumers may ultimately benefit as well, they are more exposed to risks that are beyond their control.

If a second Bass Strait interconnector was to be built commercially as an unregulated market-based link, it would not be required to undertake a RIT-T. However, it is worth briefly commenting on how consumer benefits and costs would be impacted. The cost of a merchant link would be recovered through wholesale market trading revenues. The impact on consumers would depend on the owner's strategy in bidding the link into the market. Consumer impacts would also depend on spot price differences between Tasmania and Victoria, the volume of the flows between them and competitive conditions in wholesale and retail markets. In the case of Victoria and larger Tasmanian customers on market contracts, retailers would compete for its capacity traded into the respective region. For regulated tariff small business and household consumers in Tasmania, Hydro Tasmania's access to the link and associated contracts would be reflected in the setting of the wholesale component of regulated tariffs.

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5.2 Small Business and Households

There is no requirement for the RIT-T to measure and report on the allocation of market benefits and costs to small business and household customers. However, nor is it precluded. The PSCR for *Project Marinus* does not mention any intension to quantify small business and household impacts but, in our view, it would be good practice to include them, along with assumptions made. After all, such consumers will be primarily interested in the impacts on their consumer cohort.

5.3 Tasmanian and Victorian Impacts

The RIT-T process does not require the reporting of regional benefits and costs to consumers but it is not precluded either. We would expect these to differ somewhat depending on how the link was used. Consumers in Tasmania and Victoria will be more interested in the impacts on their region.

One advantage of a DC link it that power flows are more controllable and regional impacts should be easily modelled as part of the RIT-T.

Basslink has historically operated in a way that benefits consumers on both sides of Bass Strait. Power has been exported to Victoria when prices are high in that region, such as during peak times of the day or year or during capacity outages. On the other hand, Tasmania has imported power when drought or capacity issues increase spot prices in that region. This can help to moderate prices and maintain supply in both regions. The direction of these lows changes over time. More recently, with capacity shorter in Victoria due to thermal plant closures there and elsewhere in the NEM, including Hazelwood Power Station in 2017, and hydro storages well stocked, power has tended to flow more into Victoria. Tasmanian and Victorian consumers have both benefitted from these outcomes.

A second interconnector would offer similar benefits but its main purpose is likely to be the export of renewable energy and pumped storage from Tasmania into Victoria and beyond. This suggests that Victorian consumers could be greater beneficiaries of a second interconnector, although Tasmanian consumers could also benefit at times. The small size of the Tasmanian market compared to the rest of the NEM and the absence of any capacity problem also suggests that a second interconnector will be less beneficial to Tasmanian consumers. Charges should reflect the distribution of benefits between the two regions.

5.4 Who Pays?

An issue that should be of significant interest to consumers in both Tasmania and Victoria is the allocation of the costs of a second Bass Strait interconnector. There is little comment in the PSCR on who would pay the network charges for *Project Marinus*. In our view, it should be allocated according to who benefits, including renewable energy owners, consumers in Tasmania and consumers in Victoria. It is important for consumers to see how this will be distributed and the RIT-T should include such information.

If a merchant link were developed instead, the financial mechanism to cover its costs would need to be agreed contractually between the link owner and its users, presumably mainly renewable generators. Consumers would be less exposed to costs and risks.

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6 RISKS FOR CONSUMERS

As alluded to elsewhere in this report consumers, especially those in Tasmania and Victoria, could bear significant risks from the construction of a second Bass Strait interconnector, especially if it operates as a regulated link. These risks include:

- That the interconnector operates as modelled and does not become stranded or underutilised, in which case consumer network charges could increase to pick up any slack.
- That the market is competitive enough to pass through wholesale price reductions to consumers. Presently, there is some doubt about this in Victoria as expressed by the ACCC in its recent report on electricity prices.
- In Tasmania, there is a risk around regulation of small business and household prices. This needs to ensure that the benefits of lower wholesale prices and ancillary services costs are passed on to consumers. The Tasmanian Government has capped regulated electricity prices until 2021/22 and is investigating linking retail prices to the cost of producing electricity in Tasmania rather than the Victorian wholesale contract price.

If a second interconnector were built as a merchant link then the risk exposure changes. An arms length fully commercial operation would take on the risks but if it possessed market power or negotiated contracts that passed on some risks to consumers they could still be left holding residual risks. There is a further risk that government involvement or intervention to support a merchant link could transfer risks to consumers or taxpayers.

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7 NEXT STEPS

The next step in the RIT-T process is for TasNetworks to prepare a ***Project Assessment Draft Report***. This must be within 12 months of the close of consultation on the PSCR, that is, by 20 October 2019. We outlined details of this stage in Section 3.1.

The third state involves preparation of the **Project Assessment Completion Report**. We outlined details of this stage in Section 3.1.

Following that there is a dispute resolution process also outlined further in Section 3.1.

In addition to the RIT-T, TasNetworks is also undertaking a separate process to establish a business case for *Project Marinus*. This will be provided to the Tasmanian Government and ARENA. It involves publication of an initial Feasibility Study by the end of 2018 and Business Case Assessment by the end of 2019. We assume that both would be made public and written submissions invited but the TSBC and other interested consumer advocates should confirm this with TasNetworks.

Given the importance of *Project Marinus* to electricity consumers in Tasmania and Victoria, we believe that the TSBC and other interested consumer advocates should closely monitor developments with the RIT-T application and the business case; and involve themselves in the consultation processes for both. We anticipate that TasNetworks will also be engaging with consumers as its RIT-T proceeds.

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8 CONCLUSIONS

We have undertaken a detailed assessment and commentary of the PSCR for *Project Marinus* for our client, the TSBC, with the results presented in this report. This also considered the application of the RIT-T to the project, and its impacts on consumers, especially small business and households, as well as consumers in Tasmania and Victoria.

We consider that TasNetworks has, for the most part, adhered reasonably well to the AER's RIT-T guidelines in preparing the PSCR, but there are some exceptions:

- Its specification of the Identified Need for the project lacks sufficiently broad specificity and contrasts to that of ElectraNet for *Riverlink*.
- Its specification of credible options is too narrow and this could impact on consumers. A broader approach would be beneficial.
- Its interpretations of market benefits closely follows the RIT-T, but sometimes fails to give sufficient recognition to the impact that alternative interconnector, renewable generation and storage (pumped hydro and renewable generation) options could have on the economics of *Battery of the Nation* and *Project Marinus*.
- It has not taken a sufficiently proactive approach to identifying non-network options.

After a somewhat limited start, TasNetworks is now involved in a more active approach to consumer engagement on *Project Marinus*, which is welcome. This should continue into the PADR and also the preparation of the feasibility studies.

Some of the gaps identified above can be overcome in the PADR, but others rely on external developments to the RIT-T. For example, further development of Battery of the Nation to firm up what appear to be overly optimistic estimates of its pumped hydro capacity and costs per MW. The PACR would also benefit from a quantification of benefits to small business and household consumers, as well as impacts on consumers in Tasmania and Victoria. Consumers are more interested in price impacts than market benefits under the RIT-T. ElectraNet has quantified such impacts in its PADR for *Riverlink*.

Project Marinus involves a very significant regulated investment with significant network costs to be allocated to consumers in both Tasmania and Victoria. These costs will appear in TasNetworks' capex and its Regulated Asset Base for many years to come. Along with these costs come downside risks for consumers that they are not well placed to manage or mitigate. Thorough application and maximum public scrutiny of the RIT-T, notwithstanding that the test has some shortcomings, is the best guarantee consumers have of a decision emerging that is reflective of an efficient investment with net market benefits.

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