DRAFT 2020 INTEGRATED SYSTEM PLAN ACTIONABLE ISP PROJECTS - CALL FOR NON-NETWORK OPTIONS. March 2020 -

Tasmanian Small Business Council
'Uniting Small Business'

Introduction

The Tasmanian Small Business Council (TSBC) welcomes the opportunity to respond to AEMO's call for non-network options for actionable ISP projects, viz the Victoria to New South Wales Interconnector (VNI West) and Queensland to New South Wales Interconnector (QNI) – Medium Upgrade, identified as actionable projects in the Draft 2020 Integrated System Plan (ISP).

The Tasmanian Small Business Council (TSBC)

The Tasmanian Small Business Council (TSBC) is an "association of [small business] associations", each of which represents their market grouped industry sector. The TSBC seeks to provide the representative voice of small business in Tasmania. The TSBC's role in facilitating meetings of and forums for these trade associations, whose members are predominately small businesses, is paramount to providing informed insights and advice to governments and regulators.

The TSBC welcomes the opportunity for Tasmania to play a role in helping with the nations' transition to renewable energy, and welcomes the position adopted by the Tasmanian government that Tasmanian consumers will not pay for something which does not benefit them.

There are however a number of matters which we believe need to be considered carefully before any commitment is made to the proposed interconnector project (Marinus Link) which would directly affect Tasmania, and other interconnector projects which are proposed in AEMO's Draft 2020 ISP.

TSBC project - A consumer perspective on interconnector and transmission investment – Project Marinus (case study)

The TSBC, assisted by Goanna Energy and SavvyPlus Consulting, funded by Energy Consumers Australia, is currently undertaking a consumer review of the work undertaken by AEMO in its draft 2020 Integrated System Plan and by TasNetworks in its Project Assessment Draft Report for the Marinus Link (Bass Strait) interconnector, as a case study for other interconnector projects.

Our objective is to critique the work and test key inputs and findings, with the end-goal of creating a blueprint for consumers/advocates to engage in the process for assessing these major capital spend projects from a consumer perspective.

Our focus is on the potential costs to energy consumers; how the costs are allocated; how those costs align with the benefits which accrue to consumers; and whether or not the proposed project delivers the lowest cost outcome to consumers of all viable options.

We propose to submit our findings to TasNetworks in response to its invitation for submissions on the Marinus Link proposal, due by the 6th April 2020. This submission is an *abbreviated* summary of our findings to date, which we are providing as part of the ISP consultation process in order to alert AEMO to the work we are undertaking and its relevance to the consideration of alternative (non network) solutions to interconnectors.

We would be happy to discuss our findings in further detail.

Background – the Draft 2020 Integrated System Plan

The TSBC notes the massive change the Australian electricity market is undergoing as coal fired generation is phased out and renewable energy, mostly wind and solar generation, is phased in, and the critical role the ISP plays in facilitating the transition, with a view to achieving the National Electricity Objective.

We recognize the critical challenge of the transition, being that unlike coal fired generation, wind and solar generation are not available at all times, with the resulting need to store electricity generated by those sources and release it when it is needed, and that AEMO has identified that Tasmania's hydro resources, along with Snowy Hydro's, plus other smaller hydro resources, can play a major role in providing the necessary storage.

Under the ISP, major new interconnectors, including potentially the undersea Marinus Link, are required to connect storages and the new renewable generation to the transmission network and get it to where it is needed.

The TSBC's interest in Marinus Link and other interconnector projects (summary).

- The rules of the electricity market, as they currently stand, would see Tasmanians paying for around 50% of the cost of Marinus, if it becomes part of the regulated transmission system. The Tasmanian government has indicated that such an outcome is not acceptable, but the applicable rules have to be changed to avoid it. There is not yet agreement as to how the rules should be changed, and resolution and implementation of any change could take some time.
- It is not yet clear who would build and own Marinus. The Tasmanian government could be expected to be under considerable pressure, for example from wind generators and other vested interests, the national market operator, or the federal government, to ensure Marinus Link proceeds, and may contemplate taking an ownership position, which would see Tasmanian taxpayers taking on the associated project, investment and operating risks.
- The Marinus Link project will have a service life of around 40 years. The costs will need to be recovered over that period, which means that consumers will be "on the hook" for that period.
- But there is great uncertainty about what will happen in the electricity market. The Energy Security Board has indicated – "*The future level of demand, and the shape of demand, is unclear due to increasing penetration of distributed energy resources and energy efficiency, the potential for new sources of demand such as electric vehicles, the prospect of more active demand participation and uncertainty about the future requirements of large commercial and industrial customers*"[1].
- That uncertainty means that any investment of forty years in the electricity industry carries huge risk. If Marinus Link (or other proposed interconnectors) were constructed as a regulated asset, the investors would receive a guaranteed return over the 40 years, but consumers would carry the very real risk of it not being required at some point but would continue to pay for it.

[1] POST 2025 MARKET DESIGN ISSUES PAPER September 2019, p16

- Very large, long lived investments in markets facing high levels of uncertainty is not in accordance with sound investment strategy. Consumers will ultimately carry the risk for large investments in regulated interconnectors. Least regret analysis is one tool to address high levels of uncertainty, as is an investment strategy comprising smaller, incremental investments.
- There is a higher level question – is the ISP interconnector solution, including Marinus Link, the only, or the best way to address the changes which the NEM faces?

What the consumer review has revealed (summary).

- Some of the key assumptions which underpin the ISP and the case for Marinus Link appear to be flawed, including:
  - The projected level of take-up of battery storage, at industrial, commercial and domestic scale. A higher level of take-up than projected would mean less need for large scale storage and less need for interconnectors.
  - The reliance placed on projections which are based on previous market experience. These have proved to be very unreliable in the past.
  - The expectation of consumer behaviour and decision making – consumers are already investing in their own electricity assets at a rate which exceeds expectations.
  - The potential for gas fired generation to help bridge expected shortfalls.
  - Relatively small variations in wholesale prices projected in the business case would have a major impact on the value of the Marinus project.
  - The value of the discount rate used in the business case analysis appears to greatly understate the risk of the project.
  - The projected (understated) impact of a rapid expansion of the hydrogen industry.
  - Insufficient consideration of the potential for large, industrial electricity consumers to exit the market.

- It appears that projected market benefits will not be shared equally between generators, network operators and consumers.

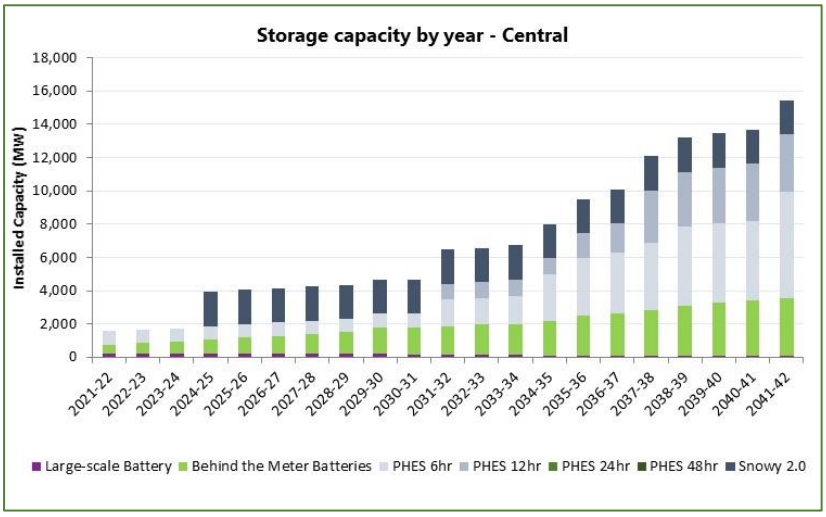
- We believe there are viable alternatives to the plan to build large, expensive interconnectors with very long service lives. We have labelled one such alternative as “Battery Link” – accelerating the consumer led energy revolution, in particular battery storage, with gas generation filling any shortfalls. Smaller, incremental investments which can be scaled to meet changes in the electricity market as they occur.

- Consumers need to have a much greater role than at present in the development of the ISP and in the evaluation of projects within the ISP.

Issues identified (abbreviated - examples)

Projected take-up of battery storage

ISP assumption:



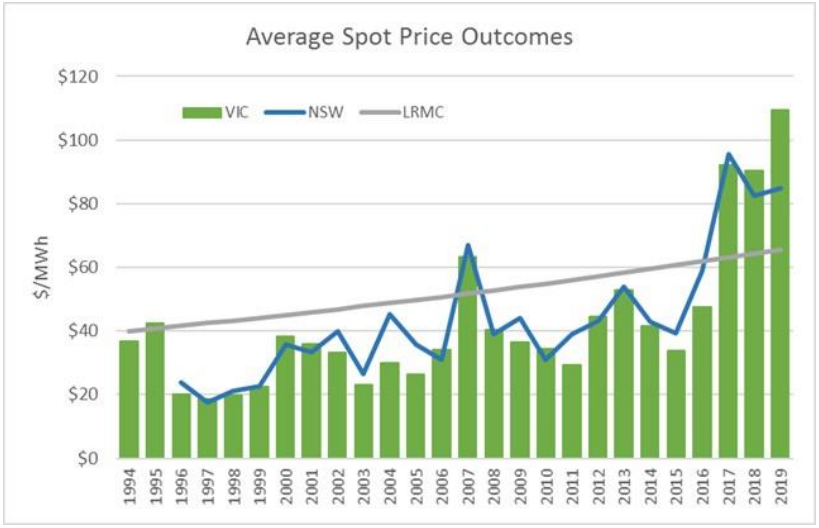
But – Origin Energy has stated that due to higher than expected costs at Shoalhaven pump storage, they are exploring large batteries at five locations, and AGL announced (29th January 2020) that one of Australia's largest grid-scale batteries (100MW/150MWh) will be built at Wandoan in Queensland under a 15-year agreement between AGL and Vena Energy Australia.

Further, other large scale batteries at various stages of development represent 1,290MW:

Project	State	Capacity (MW)	Status	Source	Owner
Sapphire Storage	NSW	30	Committed	NSW Govt EEP	CWP Renewables Pty Ltd
Newcastle Battery Energy Storage System	NSW	40	Probable	NSW Govt EEP	RES Australia
NSW Grid Battery	NSW	50	Probable	NSW Govt EEP	TransGrid
Sunraysia Emporium	NSW	50	Probable	NSW Govt EEP	Maoneng Australia
Buronga Energy Park Battery	NSW	250	Proposed	NSW Govt EEP	Renew Estate
Uralla Renewable Energy Hub Battery	NSW	100	Proposed	NSW Govt EEP	Walcha Energy
Kaban Green Power Hub - BESS	QLD	100	Committed	AEMO	Neoen
Bungama Storage	SA	140	Proposed	AEMO	Energy Projects Solar Pty Ltd
Robertstown Storage	SA	250	Proposed	AEMO	Energy Projects Solar Pty Ltd
Kingfisher Storage	SA	100	On Hold	AEMO	Lyon Solar
Nowingi Solar Storage - Storage	VIC	80	On Hold	AEMO	Lyon Solar
Riverland Storage	SA	100	On Hold	AEMO	Lyon Solar

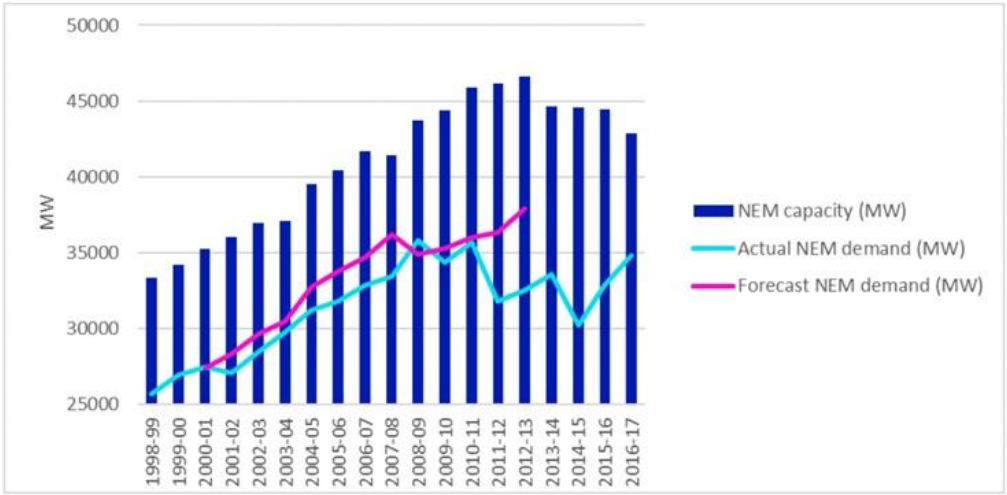
Projection history

When the electricity market began, the spot price was expected to be around long-run marginal costs (i.e. $40/MWh plus CPI). Such an outcome has not eventuated:



In addition, demand forecasts have proven to be inaccurate as consumer preferences have changed.

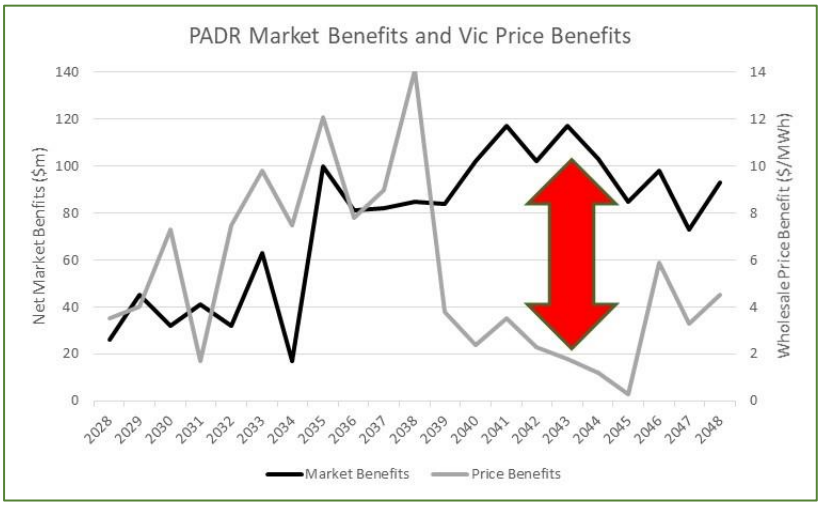
Actual and forecast NEM capacity and demand (1998-2017):



Source: AER, AEMO

Benefits sharing

From the Marinus Link PADR – benefits v versus price impacts:



Up until 2038, wholesale prices appear to be impacted by the Net Market Benefits; but post 2038, the wholesale price impacts are modest. Of the two decades, the second decade represents 62% of the Net Market Benefits when little price impact is expected. Given the modest price impact in the second decade, will this modest impact follow for the balance of the asset life?

"The analysis shows that lower fuel costs is the largest source of benefit from Marinus Link and supporting transmission …
The savings relate primarily to savings in gas-powered generation, which would be required on the mainland in the absence of Marinus Link and supporting transmission."[2] (PADR, page 86).

As modelled in the PADR, the main benefits arising from Marinus Link is from fuel switching, however, prices are not expected to be impacted at the time when most of the benefits are expected to be realised.

We contend that consumers should not be forced to pay for a regulated asset that delivers benefits to others.

[2] TasNetworks Marinus Link PADR, page 86

Interconnector alternative – Battery Link

The Battery Link concept:

- Rather than invest in a regulated asset that is exposed to significant Kodak risks (failure to anticipate the impact of emerging disruptive technology), invest in an emerging solution;
- Accelerate the consumer-led energy revolution;
- Choose a solution than can evolve and capitalise with technology developments and falling cost curves; and
- Implement a genuine Least Regret plan.

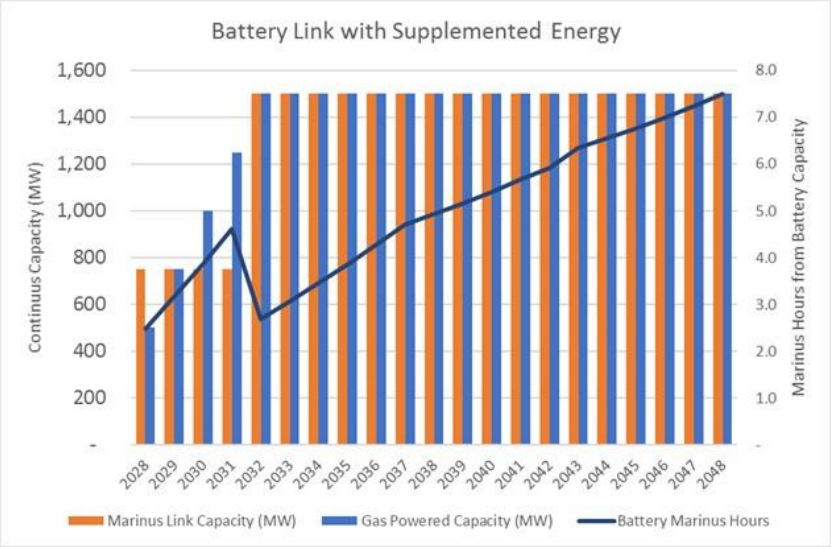
Large scale batteries

The ISP did not plan for any additional large scale batteries, which is contrary to market behaviours and endeavours. If new large-scale batteries emerged (1,000MW plus 100MW pa) and an additional 500MW gas-powered generation, increasing every second year at 250MW up to 1,500MW, then more delivered energy and capacity would be available compared to Marinus Link. This mix of technology is referred to as "Battery Link" and the same rationale would potentially apply to other proposed interconnectors.

The additional cost in running gas powered generation has been considered in our broader analysis. It is acknowledged that the first 750MW from the Tasmanian Battery of the Nation project (available via Marinus Link) would be attractive economically, however, the power still needs to be delivered to Victoria. The extra capacity from Battery of the Nation would be more expensive than the first 750MW, and the transportation cost remains at around $1.8million per MW[3] to Victoria.

In our broader analysis it has been assumed that the cost of building a gas powered capacity in Latrobe Valley would be less than the Battery of the Nation cost including the Marinus Link. The delivered electricity cost of Battery Link would be more favourable, offering more consumer benefits and more capacity to the market:

[3] TasNetworks Marinus Link PADR, Table 4



In the first year, Battery Link would offer 500MW instead of 750MW of continuous power, but there would be an additional 2.5 battery hours running at 750MW

In the second year (2029), gas powered capacity would match Marinus, and an additional 3.2 battery hours of running at 750MW would be available

In years 2030 and 2031, Battery Link would have more capacity than Marinus plus an extra 3.9 and 4.6 battery hours respectively running at 750MW

By 2032, gas powered generation would match Marinus' capability plus there would be 2.7 hours increasing each year up to 7.5 battery hours, running at 1,000MW

Behind the meter - batteries

Significant change is currently occurring "behind-the-meter", however the ISP and PADR modelling does not appear to harness the future value as much as it could. The understatement of behind-the-meter capacity is likely to lead to incorrect conclusions.

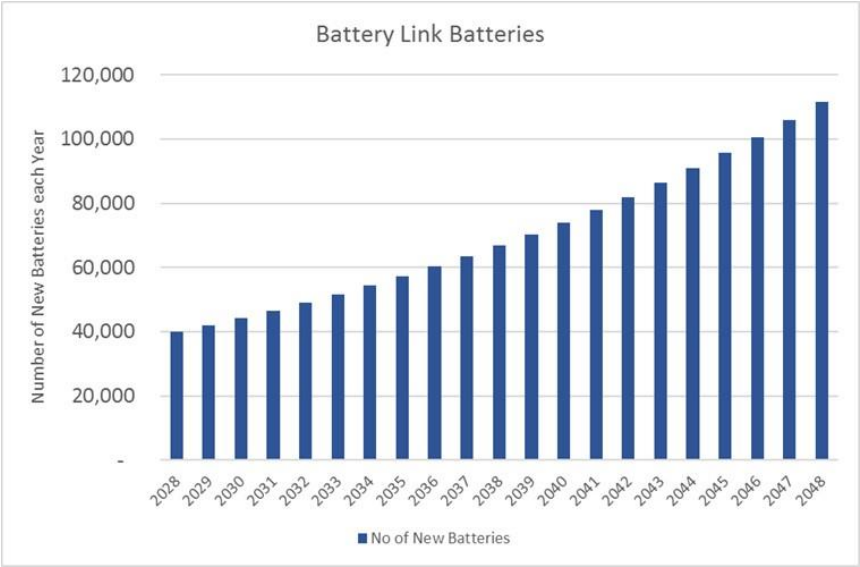
For example - by the time Yallourn is due to retire in 2032, there could be as much as 5,000 to 20,000 MW of behind-the-meter capacity, many times more than pump-storage.

As part of our Battery Link alternative - rather than spending $193m per annum[4] for the next 40 years on an asset we are not sure will benefit consumers, our alternative proposal is to:

- Subsidise home batteries to complement roof-top solar.
- Orchestrate the batteries to manage peak and critical times.

The proposed battery roll-out would be:

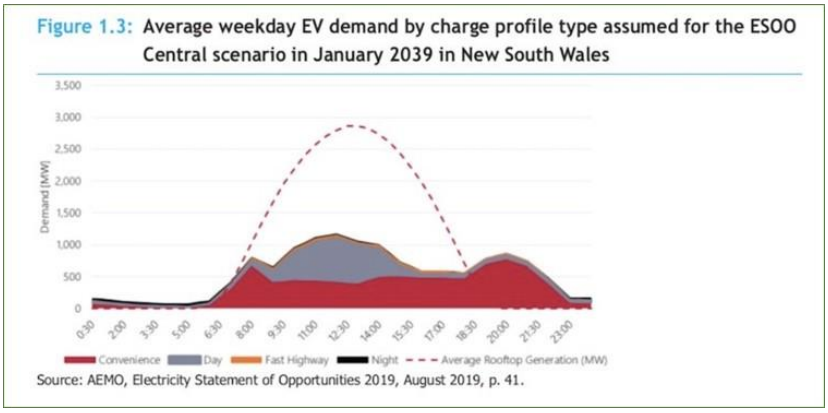
[4] Source - PADR, page 56



Batteries would be subsidised by 60% to homes and businesses leading to an estimated payback of about 6 years and would be orchestrated in the charging and discharging cycles.

Behind the meter - EV modelling

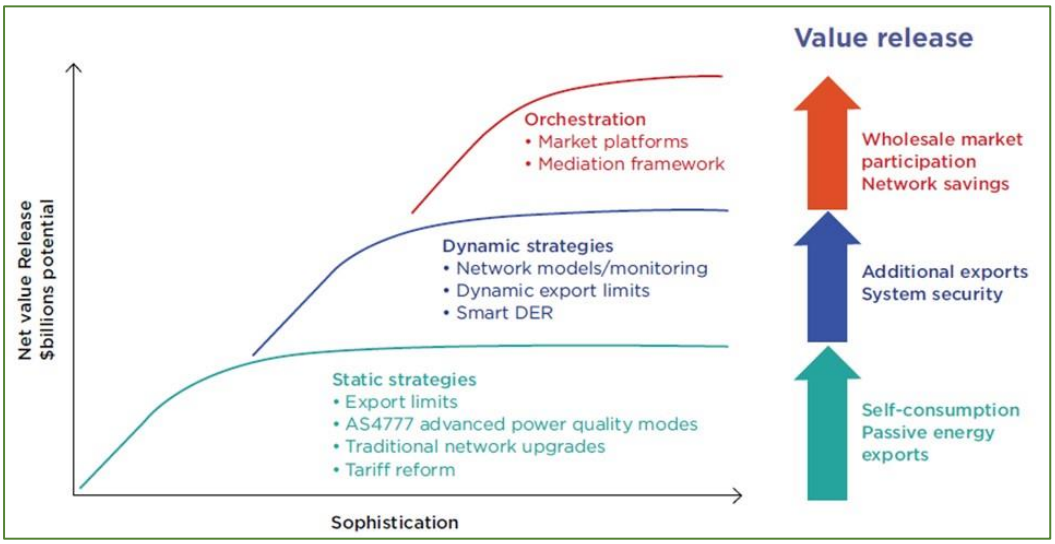
Similar to the assessment of the impact of "behind the meter" consumer activity, the ISP appears to assume a sub-optimal charging regime for EVs.



Delaying the evening start charging time would however improve the economic value to the consumer and assist with system security by alleviating demand at a critical period.

Behind the meter value release– AEMO perspective

AEMO's Distributed Energy Consultation Paper 2018 suggested the potential additional value release enabled by dynamic DER management and optimisation of active DER:



It is our view that failure to consider the full potential of behind-the-meter for grid risk mitigation capacity is likely to lead to incorrect conclusions about:

- future capacity requirements; and
- least cost technologies.

TSBC next steps.

As noted in the introduction, this submission is a precis of the work we are doing as part of our project – *A consumer perspective on interconnector and transmission investment – Project Marinus (case study).*

We propose to submit our completed work to TasNetworks, responding to the PADR for the Marinus Link project, but in the meantime would be happy to discuss any detail related to the above precis.

Initial contact should be to Robert Mallett, Executive Officer, email Robert Mallett <robert@thefrontman.com.au> , telephone 0408 144 884.