Goanna Energy Consulting Pty Ltd

Tasmanian Small Business Council
Uniting Small Business

A consumer perspective on inter-connector and transmission investment – Project Marinus.

Summary

October 2019

The Problem

- Australia faces an energy crisis in around 15 years.
- The national Energy Market Operator (AEMO) has identified that the transition of the NEM from fossil fuel generation to renewable energy, driven by commercial outcomes rather than ideology, is progressing at a pace which was not anticipated as recently as 12 months ago.
- Coal fired generation is now expected to be retired earlier than expected, with the result that in around 10 to15 years, electricity generation will not meet demand when it is required (a market failure).
- Renewable energy capacity will be abundant, but intermittent.
- Which requires intervention.
- AEMO, the national Energy Market Commission (AEMC) and policy makers at a state and national level are working on a number of plans to address that situation.

The Plans

At the highest level the plans include:

- Facilitating investment in new, renewable generation (wind and solar).

  Private investment. $50 plus? billion

Plus:

- Accessing existing large hydro storages (Snowy and Tasmania) to provide electricity when the wind doesn't blow and the sun doesn't shine;
- Increasing storage capacity – large (Snowy 2) and small (pumped hydro);
- Adding to the transmission system to connect storages and new renewable generation to the grid, including interstate connections, which include Marinus.

  Under the current rules consumers and/or taxpayers will bear the cost of new transmission investments of around $8? billion, in addition to bearing the cost of existing transmission assets, and bearing the risk and/or cost of Snowy 2.

The Plans (cont'd)

Also include:

- A 20 year outlook, Integrated System Plan (ISP) – AEMO;
- Rule changes to fast track network investments – AEMC;
- Coordinating generation and transmission investments and changes to access, pricing and charging arrangements (COGATI) - AEMC; and
- Enhancing the electricity distribution system to cater for two-way energy flows (OpEN) - AEMO/ENA.

The Big Issues

- The assets which make up the bulk of the intervention plans have lives of greater than 40 years and up to 100 years.
- It is not certain that those assets will be required beyond the 10 to 15 years AEMO has identified as the crisis point, given the rapid changes in the shape of the electricity market, including the take-up of local generation and storage.
- How the risk of stranded or unproductive assets will be reflected in consumer prices in the medium term (10 to 15 years) is not known.
- AEMO solution – intervention by way of additional large scale transmission and interconnection assets and access to deep storage.
- AEMC – more focussed on adapting to the change in generation mix – consumer led, including DER.

What is *Project Marinus*?

1. More Bass Strait interconnectors … 1,2,3,? … in addition to Basslink (600MW)

2. Technically speaking … HDVC, VSC … 1 x 600MW or 2 x 600MW (1,200 MW) … Basslink = ~600MW

3. Indicative costs … Up to $3.2 billion for 1.2MW

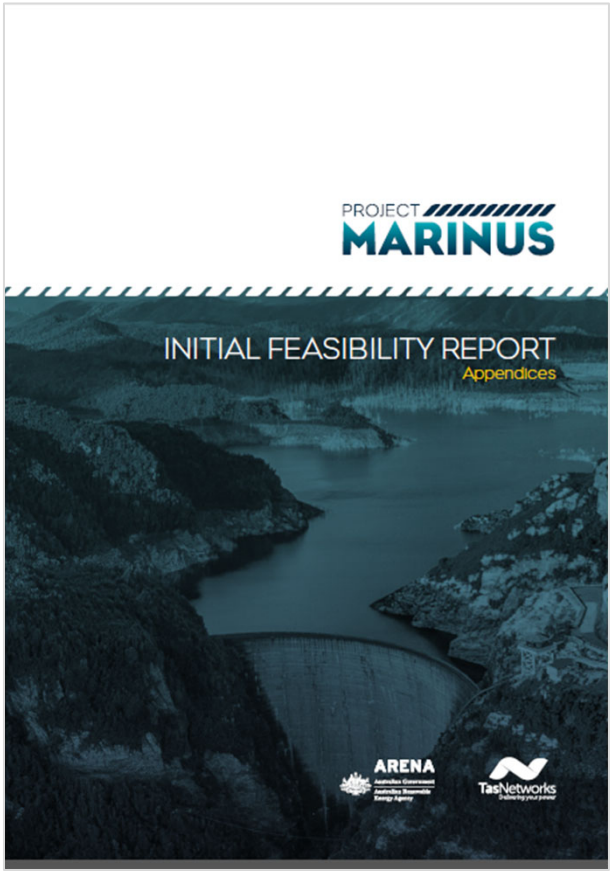
PROJECT MARINUS

4. Regulated link … costs rolled into Tas & Vic TUoS charges … customers pay … RIT-T required

Latest update – 1 x 750MW or 2 x 750MW

5. Alternative is 'merchant link' … costs recovered through wholesale prices … pass through … no RIT-T

Project Marinus – Initial Feasibility Report (February 2019)



The report summarises the outcomes of the modelling and provides the key insights from the cases modelled. The report supports Marinus Link as a strategic interconnection investment for NEM-wide net economic benefits under all of the sensitivities analysed. This assumes substitution of lower cost, renewable Tasmanian generation resources for higher cost thermal and renewable generation in mainland NEM regions.

An important contributing factor to delivery of economic benefits by Marinus is the scale and timing of the retirement of coal generation on the mainland, with the assumption that large scale retirements commence in the 2020s rather than the 2030s.

Observations

Marinus' benefit is to firm mainland renewable energy uptake and provides little detail on the benefit to Tasmania's energy supply, with or without the investment.

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RIT-T – fit for purpose – interconnectors?

1. Inclusion of producer benefits when markets are imperfect

2. Consumers lack direct and formal involvement at the start of the process.

3. No guarantee that all credible options will be examined

4. No assessment of the impact on prices to consumers

5. Some benefits are more difficult to measure. The easy ones tend to get included

6. Benefits are aggregated. No regional accounting but this matters to consumers

7. Prone to forecast error due to long term assessment and TNSP natural bias

8. The interconnector 'conundrum' – market vs regulated, genco vs TNSP

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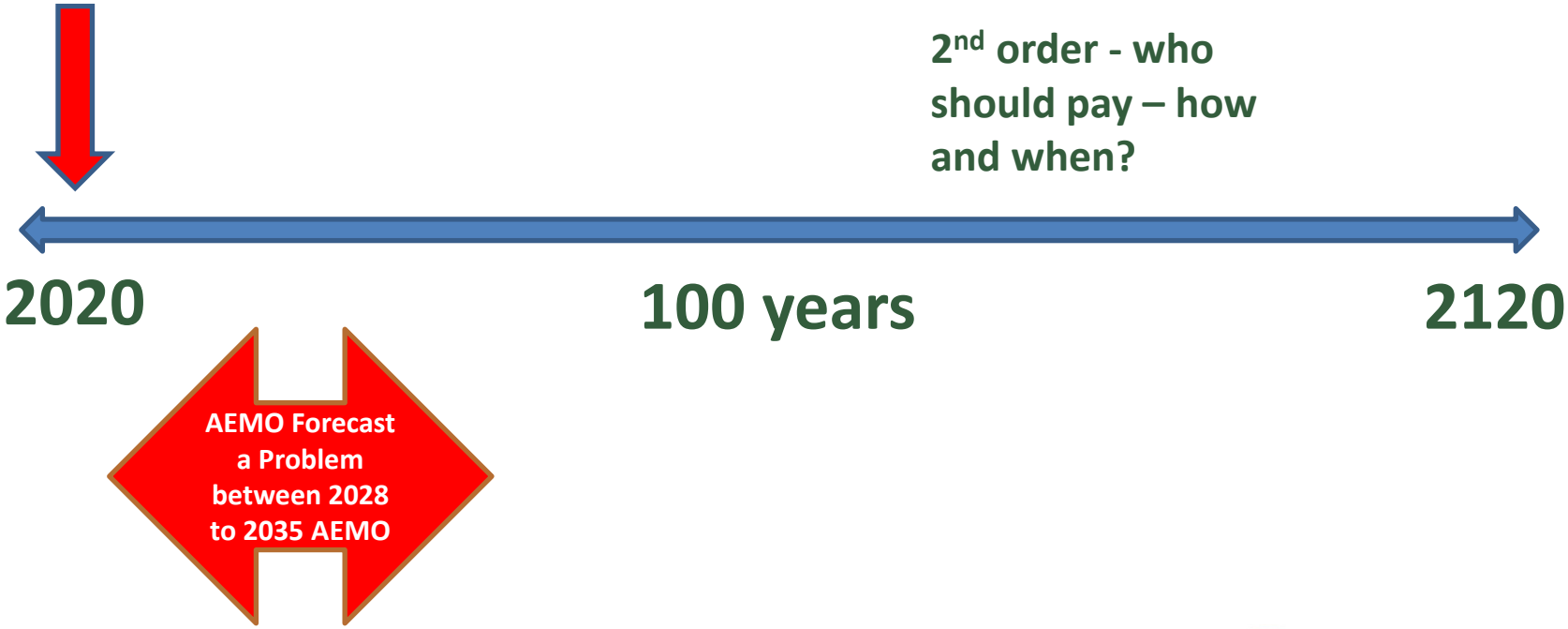
For consumers nationally:

1st order - How much cost should be locked in here, to address the possible problem 15 years ahead? What are the alternatives? What might be the impact of the energy revolution?

2nd order - who should pay – how and when?



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The Tasmanian situation

- Tasmania is in a unique position – electricity is primarily generated using large scale hydro resources and it aims for its electricity requirements to be met 100% from renewable sources by 2022.
- It does not face the challenge of transitioning from coal fired generation to renewable generation.
- The risks and costs involved in making its large scale hydro resources (storage) available to support wind and solar generation supplying the mainland market as part of the “grand plan” are very large.
- For Tasmanian consumers:
  - What advantages does AEMO’s plan provide over the status quo?
  - What are the risks, costs and environmental implications of using Tasmania’s hydro storages to help avoid an energy shortage on the mainland?
  - Will the potential rewards outweigh the risks and costs in the short, medium and long term?
  - How will policy makers ensure that the vested interests of large players do not carry greater weight than the interests of consumers and taxpayers?
  - What is the financial interplay with other interconnectors which will be constructed?
  - What is the timing of the rule changes needed to allow costs to be aligned with beneficiaries?

The Consumer Revolution

- What will be the impact, and when?
  - Roof-top solar PV forecasts
  - Solar applications
  - Home and business storage uptake rates
  - Bi-directional EMV
  - Artificial Intelligence and ‘black-box’ control technologies supported by 5-minute wholesale pricing signal
  - DER impacts, including EVs

ENERGY REVOLUTION
Movement for change

Other changes in the market

- The changing shape of the price curve as the level renewable generation increases (refer modelling strategy).
- The emerging hydrogen economy (a game changer?)
- Very large scale solar generation.
- Pumped storage – non traditional (eg South Australia Cultana – salt water).
- 5 minute settlements (making storage more viable).

A question – is the current regulatory framework capable of keeping up with the very rapid changes in the market place?

- (eg smart meters – plans were in place for a national rollout in 2007 via NSMP and NSSC. 12 years later 70% of customers still do not have smart meters. AEMC's current intention is to monitor smart meter roll-out).

Large Industrial Consumers are at Risk

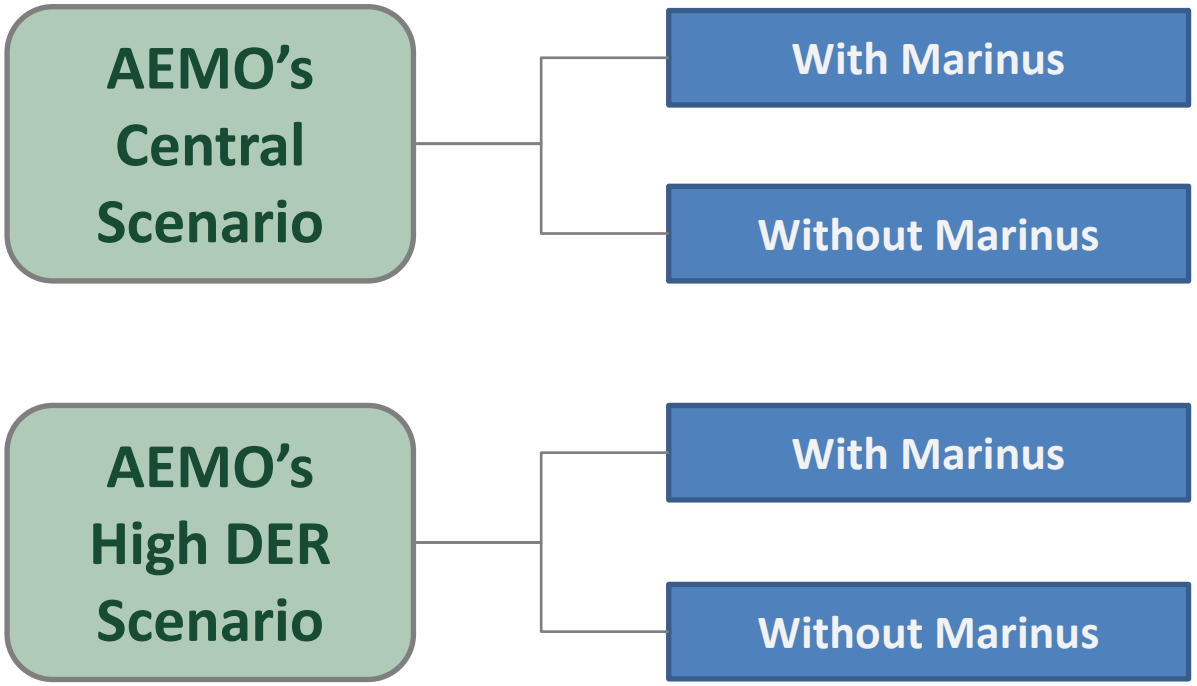
- It would be unwise to plan a grid assuming all the existing large industrial consumers remain on-foot.
- It would seem more appropriate to develop contingency plans.

Consumer Questions

Our project seeks to ask the right questions and to present information, including market research and modelling outcomes, to identify why the questions are relevant:

- Is the AEMO solution/plan the only viable solution in the medium term (10 to 15 years)?
- Is the AEMO solution/plan in the best long term interests of consumers?
- What impact on the plan will the rapid advancements in generation and storage have beyond 15 years?
- What are the alternatives which have been considered but discounted?
- What are the alternatives in the longer term (to 50 years)?
- Gas was to be the means to bridge the transition to renewables – is there still a role for gas?
- What are the cost implications for consumers – short, medium and long term?

Our modelling Scenarios



Our timeline

- Provide detailed modelling assumptions, outcomes and findings to Peer Reviewer – 21st October.
- Finalize RIT-T assessment – 31st October.
- Draft report, including Peer Review feedback – 15th November
- Final report – 29th November.
- Draft Framework for Consumer Engagement on Interconnector and Major Transmission Investments – 1st February 2020.

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Thank you

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