

Submission regarding AEMO ISP 2022
February 14th 2022.

Summary

AEMO's ISP 2022 is fundamentally flawed in its assessment and conclusions regarding Marinus Link transmission augmentation being of large net benefit to the NEM.

AEMO has failed to do a cost benefit analysis of the Marinus Link project. Instead it looks at a scenario and development path analysis and then jumps to recommending specific transmission augmentation projects without considering specific details.

Marinus Link is not economically viable and will be of no net benefit to the NEM. It is not a single proposed interconnector. It is an integrated project of i) an interconnector and ii) the build of 1,900MW of additional wind in Tasmania and iii) augmented transmission in Tasmania. As such the project should be assessed in its entirety and not as if it is stand alone. The cost of the whole project should be compared with a mainland build, not assume that additional wind will be built regardless of Marinus Link hence, no cost incurred in Tasmania.

Tasmania's own Minister for Energy, Minister Barnett has belled the cat. Tasmania's new wind build is dependent on Marinus Link and will not proceed without it. This contradicts the fundamental assumption of the entire AEMO ISP2022 analysis of Marinus Link.

'Madam Speaker, The economics of Tasmania's wind offering suggest that significant build out of new renewable electricity generation will occur in the State. Renewable energy is one of Tasmania's greatest economic opportunities. By legislating the TRET the Government is providing the energy sector with investment confidence. It also provides a clear signal to the Australian Energy Market Operator (AEMO) about Tasmania's strong commitment to developing its renewable energy potential to support changes to the National Electricity Market. AEMO has noted this by including the TRET in modelling of the latest Integrated System Plan (ISP). The ISP identifies Marinus Link as an actionable project – one that is critical to address cost, reliability and security issues. This means that Marinus Link is absolutely required and forms an essential part of the NEM's optimal development pathway. While the TRET strengthens the position of Project Marinus, the interim and final targets will only be achievable with the full commissioning of Marinus Link (i.e. both 750 MW cables). '

AEMO is wrong to assume that Tasmania's TRET is anything other than a political promise. It has no compliance, enforcement or penalty provisions and should not underpin the assumptions in AEMO's 2022 ISP.

AEMO's ISP 2022 analysis of Marinus Link does not take into account Basslink's 600MW cable in its calculations of viability.



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Marinus Link has already been rendered a white elephant by the revolution in battery technology which has eclipsed the value of a water battery in Tasmania to the operation of the NEM.

Context

By producing an Integrated System Plan, choosing optimal pathways for the development of the NEM and determining actionable projects, AEMO has replaced the Australian Energy Regulator as the major decision maker on the merits of transmission infrastructure in the NEM. This has occurred by default but has been accepted by state and federal Energy Ministers whereby they now accept inclusion of a project in the ISP as 'an actionable project' as project recommendation to Governments and assume that the ISP process constitutes a comprehensive assessment including a full cost benefit, reliability and security assessment.

Tasmanian Energy Minister Guy Barnett is a case in point. In his second reading speech on the Tasmanian Renewable Energy Target legislation, he jumps from Marinus Link as actionable to one that forms an essential part of the optimal development pathway.

'The ISP identifies Marinus Link as an actionable project – one that is critical to address cost, reliability and security issues. This means that Marinus Link is absolutely required and forms an essential part of the NEM's optimal development pathway.'

Whilst inclusion in the ISP does not mean a cost benefit, security and reliability analysis has been done, neither Governments nor AEMO have made clear to the general public the limitations of its assessment process. Governments are happy to have AEMO deliver on their aspirations and escape the usual scrutiny such decisions attract. If the assumptions and projects fail to deliver, Governments can blame AEMO and escape any accountability. At the same time, AEMO's decisions and processes are not subject to the same level of scrutiny via judicial review of decisions or decision making processes of other similar bodies like the Australian Energy Regulator for example.

AEMO has become an unaccountable energy decision maker, (with Board appointments made by the Federal Government of the day), able to impose i) costs on energy consumers through its regulated asset powers and on taxpayers through consequential Government grants, and ii) ecological costs and iii) social costs on the community through its transmission decisions and cannot be held to an appropriate level of accountability.

Given this context, AEMO has a responsibility to make the limitations of its assessment process and accountability obligations transparent to the community. It has failed to do so.

Limitations of the AEMO ISP Assessment Process.

Energy Revolution

AEMO is charged with meeting Australia's energy security needs into the future by producing a realistic plan for development of the NEM but it is making decisions to deliver security of energy supply amidst a global energy revolution that is seeing major technical breakthroughs in energy generation and storage on an almost bimonthly basis. Hence in spite of its best efforts, AEMO's assumptions and calculations may be rendered wrong in a matter of months and certainly a few years. The record to date demonstrates the fact.

'To give a sense of the uncertainty, consider the evidence that a decade ago AEMO predicted that the electricity supplied by the grid in 2021 would expand by 26 per cent (62 terrawatt hours). In fact it has contracted by 9 per cent (18 TWh). Or consider that in 2011 AEMO predicted that just 1.5 per cent of demand would be supplied by rooftop solar in 2021. It is 11.5 per cent.'

The Integrated System Plan must therefore be seen as indicative only and qualified by the global technical revolution context in which it is being made. Its actionable projects must be scrutinised much more rigorously than currently applies as the risk posed by new technology to AEMO's recommendations may render multibillion dollar investments superfluous and 'white elephants'.

AEMO looks at scenarios, it does not conduct a full cost benefit analysis of proposed projects and this should be made clear when it includes projects in its Integrated System Plan. A transmission project might ensure energy security but it will fail to do so if it is not economically viable because it is superseded by cheaper, more flexible and faster technology which is more socially acceptable or less ecologically damaging. The development of large capacity battery technology and its rapid movement down the cost curve is a major risk to undersea transmission interconnectors like Marinus Link to water storages like Battery of the Nation.

Global Treaty and related Decision Making

There are revolutions occurring in policy decision making globally, nationally and sub nationally that impact which technologies AEMO can reliably assume may be available for deployment to secure energy supply. Australia is a signatory to the United Nations Framework Convention on Climate Change (UNFCCC), the Biodiversity Convention (CBD) and the World Heritage Convention (WHC). It is a domestic political decision as to the extent to which Australia as a state party, or the states as subnational entities uphold these Conventions. However, as AEMO has assumed the key approvals role for projects in the future development of the NEM, it cannot ignore these shifts in global decision making in determining what constitutes an 'actionable project' as they may rule out technologies or sites that otherwise might be deployed, maintained or selected.

i) UNFCCC

The current transition away from the deployment of fossil fuels as an energy source is driven by human health, global warming and waste disposal considerations and decisions at the

international level. The speed of the transition is a political consideration which has huge impact on how the NEM operates and where transmission infrastructure is optimally located. AEMO's ISP needs to be qualified accordingly. The greenhouse gas emission profiles and the likely ramifications for the ISP scenarios and actionable projects must be clearly shown and reported against the current accepted minimum 'net carbon zero by 2050' policy and the more ambitious timeframes and targets proposed by the UNFCCC and some state Governments.

ii) IPBES IPCC

Greenhouse gas emissions are not the only considerations in determining which technologies may be deployed and where they may be deployed into the future. In 2021 the UNFCCC and the Intergovernmental Panel on Climate Change (IPCC) held a joint workshop which determined that climate change and biodiversity are two sides of the same coin and that solutions proposed to address global warming are not acceptable or indeed solutions at all, if they destroy biodiversity. Integrated decision making is essential.

Renewable Energy projects and transmission infrastructure to secure energy supply and storage may have a huge adverse impact on biodiversity and do not represent an integrated solution to addressing biodiversity loss and global warming yet AEMO does not take biodiversity into account in determining the optimal development pathway or actionable projects for the NEM. This failure has serious consequences for the proposed roll out of the ISP.

Perversely far from creating an optimal pathway, AEMO's ISP and proposed actionable transmission Marinus Link project will hold back development of the NEM. This is because social license will be withdrawn from renewable energy projects and transmission infrastructure around Australia because of this failure. Communities will not tolerate AEMO's ignoring Biodiversity and overriding of planning principles in its ISP and recommended Renewable Energy Zones. Whilst AEMO will argue this is beyond its remit and that it makes no claims about Renewable Energy Zones beyond being an indicative map of renewable energy resources, the fact is that AEMO's ISP and REZ are being used by state and federal governments to transcend planning laws and regulations to deliver transmission, generation and storage projects that would otherwise be assessed more comprehensively under other regulatory frameworks. AEMO has an obligation to make clear that its ISP and actionable projects have not been assessed against planning principles, or biodiversity impacts or greenhouse gas emissions and should not substitute for such assessments.

For example, Marinus Link has been advertised for planning approval to include specific Tasmanian transmission infrastructure which is not part of the undersea cables but which facilitates and benefits private investment and wind farm developers in the far north west of the state. This is sleight of hand. The community is aware that if that transmission infrastructure was privately funded, the developer would not have compulsory acquisition rights over the transmission route. As it stands, landowners will be subjected to compulsory acquisition of transmission corridors to benefit private wind farm developers without a full environmental impact assessment or a comprehensive cost benefit analysis which recognises that the Marinus

Link project and the specific wind farm developments are integrated projects. Neither can or should be assessed separately as they are interdependent.

So given the context in which AEMO is delivering its 2022 ISP, it is inevitable that AEMO's ISP is not fit for purpose. The same organisation cannot accommodate the futuristic thinking and risk assessment that is required to speculate about what energy generation, storage and transmission might look like in a decade's time given the accelerating climate and biodiversity crises and technological revolution and, at the same time, be expected to deliver a cost effective definitive roadmap of actionable projects which will guarantee energy security regardless of what that future might deliver.

Marinus Link

There are three main assumptions AEMO has included to support Marinus Link's inclusion in the 2022 ISP as an actionable project. Firstly it will prevent renewable energy already built generated in Tasmania from being spilt; that it will facilitate that surplus energy to be exported to the NEM at little or no cost other than the cost of the interconnector and thirdly, that it will provide access to the long duration energy storage service that the NEM a) needs and b) that Tasmania's existing and proposed 'Battery of the Nation' hydro infrastructure can provide.

Assumption 1 and 2

Wind energy will be built in Tasmania regardless of whether Marinus Link is built and will be spilt.

Tasmania's excess renewable energy thus generated will be provided to NEM at no cost except for cost of Marinus Link cables.

These are ridiculous assumptions. The only reason Granville Harbour and Cattle Hill wind farms were built is that the Tasmanian Government directed Hydro Tasmania and Aurora to sign generous Power Purchase Agreements to make them 'investible projects' for the developers forcing Hydro Tasmania and Aurora to incur the losses. This is unsustainable as Hydro Tasmania and Aurora are wholly owned Government Business Enterprises and cannot continue to absorb the costs of these 'Community Service Projects' without increasing energy prices to Tasmanian consumers or bankrupting Hydro Tasmania.

Why would AEMO assume that new wind projects, in the absence of a market via Marinus Link, would be investible projects and be built?

Furthermore in his second reading speech on the Tasmanian Renewable Energy Target Bill 2021, Minister Barnett is explicit in saying that the legislation is to send a 'signal' of Tasmania's commitment to 'developing its renewable energy potential' to AEMO but that,

'While the TRET strengthens the position of Project Marinus, the interim and final targets will only be achievable with the full commissioning of Marinus Link (i.e. both 750 MW cables).'

In other words, without the full commissioning of Marinus Link, (2x750MW cables), the interim and final targets will not be achievable and renewable energy potential will not be realised.

Yet in spite of the Tasmanian Government Minister's explicit statement to the contrary, AEMO has assumed, in its calculation of the benefit of Marinus Link,

- i) that the renewable energy potential/1,900 MW of new wind required to meet 2030 and 2040 TRET targets will be built without Marinus Link;
- ii) that new renewable energy generation assets will be built without a market for the energy produced and will have to be spilt. This is nonsensical. All the new wind farm project proponents admit that their projects are only investible with transmission augmentation in Tasmania and via Marinus Link provided and funded by energy consumers or taxpayers. They all know that if the cost of transmission was internalised, the energy produced is not competitive.
- iii) that for the equivalent new renewable energy infrastructure to be built on the mainland there would be considerable cost but for the same to be built in Tasmania there would be no cost because it was built anyway. This is ridiculous. The cost of this new wind generation infrastructure and transmission augmentation in Tasmania must be included in AEMO assessment of the cost of Marinus Link. It is in the ball park of \$5-6 billion and demonstrates the extent to which the net benefit assessment is wrong.
- iv) that given Tasmanian new energy infrastructure is low cost or free to the NEM, the cost of Marinus Link is cheaper than an additional mainland build. If one assumes that the cost of building new generation on the mainland and its projected output is not very different to that build and production in Tasmania, the \$3.5 billion for Marinus Link must be added to the cost of \$5-6 billion making Marinus Link of no net benefit as costs exceed benefits.

Far from an evidence based 'optimal development path' for the NEM, this is a development path woven from fanciful assumptions developed to deliver political outcomes.

Assumption 3 and 4

3) The NEM needs long duration storage and 4) that the Tasmania Hydro system is best placed to provide it.

Regardless of whether the NEM needs long duration storage, battery technology can provide that firming service more cheaply and flexibly than Hydro Tasmania's Battery of the Nation can provide it.

'Marinus Link continues to have no prospect of competing against battery alternatives in Victoria. More than that, with the information we analysed in the development of this update, we now feel able to conclude that if Hydro Tasmania develops pumped hydro capacity in Tasmania it is very likely that, like Snowy 2.0, it will not be economically viable. This does not show in AEMO's modelling because that modelling assumes that Tasmanian pumped hydro capacity and Snowy 2.0 will crowd- out battery development (if the Tasmanian Government and Australian Government force their development). However, contrary to this assumption, we have already seen private investor response in the development of batteries in Victoria and New South Wales. It seems to be increasingly likely that large amounts of storage capacity in the form of batteries will be operational long before pumped hydro capacity in either Tasmania or from Snowy 2.0 is operational. Considering the much higher round-trip efficiency and responsiveness of chemical batteries than pumped hydro, if pumped hydro is developed in Tasmania it seems to be quite likely that it will sit idle.'

But what about long duration storage? Will it be necessary. Hydro Tas and Tas Networks cite CSIRO and California as evidence to support long duration storage but both have been misinterpreted to support the Marinus case. CSIRO's storage capital cost estimates cannot, of themselves, be used to reach a conclusion on "cost effectiveness".

The Californian study TasNetworks quotes does not provide evidence helpful to Marinus Link. To the contrary, the Californian and American studies all seem to support a conclusion that chemical batteries will completely dominate storage supply in California and the rest of the United States.

AEMO has allowed itself to become the delivery vehicle for state government aspirations rather than for independent assessment of what is needed for the future delivery of energy security across the NEM. The Tasmanian Government, as a stakeholder, claimed Tasmania will have excess renewable energy to feed into the NEM and its hydro electricity infrastructure can act as a cost effective battery for energy storage from renewable energy generators on the mainland providing someone provides and pays for a transmission line.

AEMO included this aspiration in its previous ISP on two conditions. Firstly that Tasmania legislated its 200% renewable energy target and that a cost sharing agreement is reached by 2024. Tasmania then legislated its target. But the legislation is merely a signal of commitment to produce 200% renewable energy by 2040 and the only legal requirement that the Director of Energy Planning report on progress each year in the annual report. There is no compliance or enforcement mechanism. There is no penalty for failure. It is merely legislating a promise which

can be broken without penalty or repealed or not progressed. Fulfilling the first condition is meaningless.

This is critical. Tasmania's TRET is not worth the paper it is written on in terms of guaranteeing or ensuring anything. It is irresponsible for AEMO to use it as a basis for assuming 15TWh by 2030 or 20TWh by 2040. Yet that is exactly what AEMO has done in its 2022 ISP. The question is Why?

The second condition is not fulfilled. There is no cost sharing agreement in place, nor is there any prospect of one. The NEM rules require Victoria and Tasmania to pay for the regulated asset but why would Tasmanians pay when they don't use this energy and why would Victoria impose this cost on energy consumers when they don't need to as the private sector is paying for both the new renewables generation assets in Victoria and batteries for storage?

The only way Marinus Link will be built is if the Australian taxpayers via a Federal Government pay for it with a grant of \$3.5billion. This is an outrageous waste of funds and AEMO is facilitating it by making spurious assumptions regarding Tasmania's renewable energy capacity.

Basslink

Finally where does Basslink fit into AEMO's assumptions and conclusions regarding Marinus Link? Basslink does not appear in AEMO's assumptions about the volume of energy transmitted via Marinus Link yet Basslink's 600MW cable remains in the mix. What did AEMO assume about Basslink?

Hydro Tasmania was contracted to use the Basslink cable to 2031 and had an option to extend for a further 15 years. But in a recent announcement, Hydro Tas has terminated the Basslink Services Agreement.

'The BSA is an agreement between Hydro and Basslink P/L. The latter earns income by trading electricity that it pays to Hydro in return for a fee. But the income from inter-regional trading is scarcely enough to cover the monthly facility fee, let alone the ongoing costs of the side deals with Macquarie Bank, which Hydro and the Bacon Lennon government agreed to in order to get Basslink underway in 2002.'

No one knows what machinations have gone on in the current negotiations regarding the receivership. Termination of agreement will see Hydro Tasmania forego the arbitrage revenue but doesn't have to pay the facility fee. But Basslink still owns the cable. Whether or not they choose to operate it and under what conditions is not in public arena.

But the key question is whether Basslink will continue to operate and whether it could or would become a regulated asset after 2031; will Hydro Tasmania use it? If it is fully utilised, what does this do to the proposed energy volumes and cost benefit of Marinus Link?

<http://tasfintalk.blogspot.com/2021/11/basslink-for-sale-chapter-two.html>

Many of the same arguments for undersea transmission of Tasmanian generated renewable energy to the NEM, now being used for Marinus Link, were made for Basslink in the late 1990's and early 2000's and they were wrong. Basslink has never made profit and has proved to be unreliable and has incurred millions of dollars in damages and liability. The risks associated with reliability of undersea cables are considerable. How has this been accounted for in Marinus Link risk assessment?

Marinus Link is an outdated, risk prone model of mainland renewable energy generators dependent on access to energy storage services via two transmission cables. Why would other NEM participants submit themselves to this level of risk? Why wouldn't Victoria insulate itself from this risk by becoming self sufficient in generation and storage? How is this reflected in the ISP2022? It is not unlike the old centralised power station and single transmission line to market model that has been replaced by distributed, localised systems of generation and storage.

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