

24 August 2023

Ms Andrea Marinelli  
Principal Project Manager – Regulatory Change  
Australian Energy Market Operator  
via email: contact.connections@aemo.com.au

Dear Ms Marinelli

**Review of technical requirements for connection – Update Report and draft NER amendments, Part 1**

Thank you for the opportunity to comment on the consultation report, *AEMO review of technical requirements for connection – Draft Recommendations Update Report (Part 1) – Schedules 5.2 and 5.3a of the National Electricity Rules* (the Update Report).

As AEMO is aware, Marinus Link Pty. Ltd. (**MLPL**) is developing Marinus Link, a second high voltage direct current (**HVDC**) interconnector between Tasmania and Victoria. Marinus Link is proposed to comprise two 750 MW symmetrical monopole HVDC links, each utilising voltage source converter (**VSC**) technology. Marinus Link is an actionable project in AEMO's 2022 Integrated System Plan. MLPL is registered as an intending transmission network services provider (**TNSP**).

MLPL would like to thank AEMO for its due consideration of issues we raised in our previous submission to this technical standards review. In particular, we are supportive of AEMO's proposal to remove Schedule S5.1 obligations from HVDC network elements that are covered by Schedule S5.3a. Whilst there were some points MLPL raised with which AEMO did not agree, we felt that AEMO's reasons for disagreement were justified. MLPL is generally supportive of AEMO's proposed Rules amendments in the Update Report.

MLPL has identified one significant unintended consequence of the proposed amendments to Chapter 5: system strength charges would be levied on HVDC systems owned by regulated network service providers (**NSPs**). We have also noted two other drafting issues of a more minor nature. Details on all three items are provided on the following pages.

MLPL would be pleased to provide further information on any aspect of this submission. For any enquiries, please contact Paul Rayner, paul.rayner@marinuslink.com.au.

Yours sincerely,



Stephen Clark

Project Director – Marinus Link

## Unintended consequence of proposed amendments to Rule 5.3.4B – System strength mitigation requirement

In our previous submission to this technical standards review, MLPL stated a view that joint planning is the most appropriate way to deal with system strength requirements of HVDC systems owned by regulated NSPs. This is because there may be circumstances in which it is more cost effective to mitigate an HVDC system's system strength requirements using equipment located in the AC network, rather than incurring additional costs in the HVDC system. Given the final costs of system strength mitigation would ultimately be borne by end use customers via TUoS/DUoS regardless, the joint planning process serves the NEO by allowing the most efficient mechanism for system strength mitigation to be implemented.

In the Update Report, AEMO has supported this view,

“...AEMO does agree with Marinus Link that system strength charges should not apply to HVDC systems developed by regulated NSPs. Rather the need for additional system strength services, or the allocation of existing system strength services, and the recovery of the associated costs would be determined through the joint planning process.”<sup>1</sup>

Rule 5.3.4B deals with system strength mitigation requirements, and the rule currently applies only to generators, market network service providers, and network users which include inverter based resources. The proposed amendments to Rule 5.3.4B include replacement of the term *Market Network Service Provider* with the term *Schedule 5.3a Participant*. This has the effect – presumably unintended – of making the system strength mitigation requirements applicable to all HVDC systems, including those owned by regulated NSPs. This contradicts AEMO's view stated previously. MLPL requests that the amendments to Rule 5.3.4B be reconsidered, with a view to ensuring the system strength mitigation requirements are not applicable to HVDC systems owned by regulated NSPs.

Furthermore, MLPL suggests an there would be benefit if the amendments Rule 5.3.4B include an explicit statement to the effect that system strength mitigation requirements for HVDC systems owned by regulated NSPs should be addressed by means of the joint planning process.

## Minor drafting amendments

### Removal of defined term “voltage”

MLPL supports AEMO's proposal to remove the definition of the term voltage on the basis that this term “is best understood from an engineering perspective in the context where it is used.”<sup>2</sup>

MLPL notes two instances in which the word “voltage” has been incorrectly un-italicised when part of the composite defined term *voltage transformer*. These are in proposed amendments to S5.3.3(c)(1) and S5.3a.6(c)(1).

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<sup>1</sup> AEMO, *Update Report, Appendix A1*, pp. 63-64

<sup>2</sup> AEMO, *Update Report*, p. 33

## **Proposal to remove the defined term “frequency”**

Given AEMO's proposal and reasoning to remove the defined term “voltage” from Chapter 10, and noting also that the term “current” is not defined in Chapter 10, MLPL proposes that the definition of “frequency” also be deleted. The definition of frequency is,

For alternating current electricity, the number of cycles occurring in each second.  
The term Hertz (Hz) corresponds to cycles per second.

MLPL considers that the term frequency is also best understood from an engineering perspective in the context where it is used.

Furthermore, if the above definition was to be relied upon it could prove problematic: the definition implies that one second must elapse in order that the number of cycles occurring is known. In many instances, however, the quantity of interest is the frequency when measured over a much shorter timescale, potentially as small as one cycle or one half-cycle. The above definition is therefore unsuitable for such circumstances.

MLPL acknowledges that, given the stage of consultation in this technical standards review, it may be too late to incorporate such a Rules amendment. However, we put the proposal forward for consideration.

