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Your ref: FOL/20/468

12 March 2021

Mr Ian Burgwin
General Manager
Electrical Safety & Technical Regulation
Energy Safe Victoria
PO Box 262,
Victoria 8007

(By email: ian.burgwin@energysafe.vic.gov.au)

Dear Ian

RE: RAPID EARTH FAULT CURRENT LIMITER FUNCTIONAL PERFORMANCE REVIEW RECOMMENDATIONS

In reply to your correspondence dated 12 February 2021 to our Executive General Manager Network Management, ESV's request has been referred to me for response.

AusNet Services appreciates the opportunity to provide comment on the Performance Review recommendations and has provided comments, as requested, in the attached table.

Should you have any further enquiries concerning this response please do not hesitate me on (03) 9695 6219.

Yours sincerely,

Phillip Bryant

Manager Network Safety

cc: Steven Neave

Attachment: AusNet Services Comments on REFCL Performance Review Recommendations

Recommendation	Performance Review	ESV Response	AST Response
C	It is recommended that distributors ensure that they hold sufficient strategic spares to ensure that REFCLs can be returned to service in the event of a component failure. In addition, distributors should ensure that the impact on REFCL performance as a result of a component failure is minimised. In this regard, the distributors should continue to explore ways to better integrate the REFCL and provide back-up protection which utilises the Arc Suppression Coil in the event that the REFCL controller fails.	ESV will submit this recommendation to distribution businesses for their formal reply. ESV and the wider industry are aware of these issues and have been working towards improving the integration, reliability and availability of REFCL technology since the program began. ESV will continue to work with distribution businesses (DBs) to ensure they have sufficient asset management practices and contingencies in place to minimise the duration of any increase to powerline bushfire ignition risk resulting from component failures, as far as practicable. ESV will also continue to oversee the industry's technical developments to improve REFCL integration and back-up protection schemes through its involvement in the Victorian Electricity Supply Industry REFCL Technical Working Group.	AusNet Services has asset management strategies in place which are designed to maximise network availability. Specifically, in relation to REFCL networks, AusNet Services has a documented spares policy for REFCL equipment (REF 30-14) which is consistent with the principles of AMS 10-128 Spare Equipment Policy – Electricity Transmission and Sub Transmission Networks. Following the completion of each Tranche, AusNet Services undertakes a review of the minimum level holding of REFCL equipment components, taking into consideration the known failure rates of components in addition to a risk-based approach for items considered critical to performance. AusNet Services continues to explore alternative methods of providing back-up protection for our REFCL systems. Key focus areas of investigation are: - Admittance based back-up protection in all feeder protection relays. - REFCL enabled ACRs and Sectionalisers. AusNet Services continues to explore providing alternative controls and tuning for the coil, however, integration with the existing manufacturer system is expected to be difficult. Other alternatives are also being explored as part of an overall review of the back-up protection policy for REFCL systems.

Recommendation	Performance Review	ESV Response	AST Response
E	It is recommended that the distributors explore methods to better predict damping values accurately, and remove the reliance on the bounded range currently adopted to mitigate the risk to the program and to maintaining compliance.	This recommendation relates to delivery and economic risks that are a matter for distribution businesses (DBs) to manage. ESV will submit this recommendation to distribution businesses for their formal reply, ESV agrees that a method for more accurately determining network damping would assist DBs to perform network planning activities more efficiently that may result in lower delivery costs. Once a REFCL is installed, network damping can be measured directly and changes can be made to address this issue if the true damping values exceed initial estimates. Therefore DBs should consider whether investment in developing a method for accurately determining network damping before a REFCL is installed will be offset by associated network planning and augmentation savings. ESV will continue to oversee the industry's development of improvements/solutions to this and several other technical issues through its involvement in the Victorian Electricity Supply Industry REFCL Technical Working Group.	AusNet Services agrees with the benefits of being able to accurately estimate and predict damping. It does however acknowledge; this is a complex problem facing many utilities worldwide. We have initiated a small study whereby the resistive losses of common line equipment are being measured. This program is in its early stages. We agree, leveraging the resources of the Victoria Electricity Supply Industry REFCL Technical Working Group is an appropriate way to further investigate prediction of damping.

Recommendation	Performance Review	ESV Response	AST Response
F	It is recommended that the distributors continue to collaborate with REFCL suppliers to develop fast voltage reduction and reduced energy released at the fault site with the objective of further reducing bushfire risk. The distributors are required to demonstrate their REFCL device can be operated at Required Capacity however if the REFCL can be configured and operated differently to deliver an improved risk reduction at the fault site then this should be explored	ESV will submit this recommendation to distribution businesses for their formal reply. DBs specify how they intend to operate REFCLs in their bushfire mitigation (BFM) plans. Since the legislation does not specify how REFCLs must operate, DBs have the flexibility to propose operational settings that differ from the 'required capacity' in their BFM plans, which ESV has a duty to review, challenge and ultimately accept or reject. If ESV and the DB cannot agree, ESV has the power to determine the operational settings, pursuant to section 83BH of the Electricity Safety Act 1998. There may be settings that can deliver greater powerline bushfire ignition risk reduction than the 'required capacity' and ESV will explore this issue in collaboration with DBs through the Victorian Electricity Supply Industry REFCL Technical Working Group, with the aim of making any necessary changes before the 2021/22 fire season.	We agree the main objectives of installing REFCL equipment is to minimise bushfire risk however careful consideration must be given to the compliance testing regime, and to legal implications, if the intention is to operate the REFCL systems on high-risk fire days with different settings to those used in compliance testing. We believe this topic should become a key focus area for the Victorian Electricity Supply Industry REFCL Technical Working Group.