



Reference: SAC17_064

Mr Paul Fearon
Director of Energy Safety
Energy Safe Victoria
Level 5, Building 2
4 Riverside Quay
Southbank VIC 3006

14 July 2017

Dear Mr Fearon

Initial comments on report regarding HV customers and REFCL protected networks

Thank you for your letter dated 23 June 2017 and for a copy of the final report prepared by Dr Tony Marxsen entitled *Customer Assets Directly Connected to REFCL networks: a preliminary risk survey (the Report)*. As requested in your letter, we will provide our detailed comments and our plans to address the potential risks identified in the Report by 31 August 2017. This letter provides some initial comment, particularly regarding the matter of the Victorian Electricity Distribution Code (**the Code**).

The Report provides useful insights into the network and equipment of customers who take their electricity supply at high voltage (**HV**) from the distribution network. It highlights the differences between customers in terms of the age and condition of their assets, as well as uncertainty over the ownership of particular assets.

As indicated in previous briefings to ESV, we agree that the operation of a REFCL could potentially affect the HV customer sub-network as well as compromise the effectiveness of the REFCL protected network to reduce fire ignitions. Whilst the Report suggests potential customer side infrastructure solutions, it does not address the restrictions of the current regulatory framework that prevent their implementation from both a technical and time-frame perspective.

To mitigate the safety risks associated with the operation of a REFCL on HV customer assets, the Report discusses the solution of installing isolation transformers between the customer site and the distribution network. The Report indicates that isolating transformers are unlikely to be the lowest cost option to mitigate the safety risks. However, the Report correctly acknowledges that there are other factors driving the choice of solution.

Our primary driver for selecting the solution of installing isolating transformers is to ensure compliance with the Code. The testing and operation of REFCLs on our network will lead to breaches of the Code in terms of voltage variation:

- magnitude — the Code permits phase-to-earth voltage variations up to 180 per cent for less than 10 seconds. The operation of our REFCLs in response to a powerline earth fault can increase phase-to-earth voltage on the un-faulted phases to a level equal to 190 per cent of nominal voltage; and

REGISTERED OFFICE

40 Market Street, Melbourne VIC Australia Telephone: (03) 9683 4444 Facsimile: (03) 9683 4499

Address all Correspondence to: Locked Bag 14090, Melbourne VIC 8001 Australia

CitiPower Pty ABN 76 064 651 056 General Enquiries: 1300 301 101 www.citipower.com.au

Powercor Australia Ltd ABN 89 064 651 109 General Enquiries: 13 22 06 www.powercor.com.au

- duration — for durations longer than 10 seconds, the Code only permits voltage variations (phase-to-earth or phase-to-phase) of ± 10 per cent. Stress testing undertaken during the commissioning of REFCLs requires increased phase-to-earth voltages of greater than 10 per cent for longer than 10 seconds. Fault confirmation algorithms (under any mode specified in our Bushfire Mitigation Plan) will also result in voltage variations of 190 per cent for longer than 10 seconds.

A secondary but significant safety benefit of installing isolating transformers is the elimination of the possibility of cross-country faults within the customer's HV installations, compromising the REFCL fire risk performance. The isolating transformers effectively insulate the HV customer assets from the REFCL covered network assets (as referred to in footnote 3 on page 3).

The Report also helpfully notes that the isolation transformer solution may remove any requirement for action by the customer and cost recovery may be shared by all customers of that distribution network. It also removes the risk of customer inaction within the timelines of the REFCL rollout.

In light of the above, we have requested the Essential Services Commission (**ESCV**) to amend the allowable variations in supply voltage for different durations in the Code to better reflect the testing and operating characteristics of a REFCL, or to provide a letter of no-action regarding any such breaches. The ESCV refused to grant a no-action letter.

The ESCV timetable for the review of the Code indicates that it will publish a Consultation Paper in the April to June quarter of 2018. This will be too late to amend our current plans to deploy isolating transformers and meet the legislative timeframes.

Should the Code be amended to allow for the operating characteristics of a REFCL, then isolating transformers may not need to be installed on our network to satisfy the Code, however the risks from the performance of HV customer assets outlined in the Report will continue to be material. These risks can potentially be managed by hardening HV customer assets, or by the customer installing an isolating transformer themselves. The obligation to be compatible with the higher voltages contained in the revised Code will then reside with the customer, and the customer can determine the lowest cost option to comply. In these cases, the distributors can provide guidance to the customer but ultimately the customers will be obligated to ensure their site is rated for the higher REFCL voltages allowed in the revised Code. Whilst this is a matter for the State Government, there may be a reasonable expectation from these impacted customers to receive financial and technical assistance from the State given it is a State initiated program designed to benefit the wider community.

As indicated, we will provide further detailed comments and our plans to address the potential risks identified in the Report by 31 August 2017. In the meantime, we would be pleased to discuss any aspect of this letter with ESV. Please contact Matt Thorpe on 03 9683 4357 or mthorpe@powercor.com.au.

Yours Sincerely



Steven Neave
General Manager Electricity Networks