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Sarah McDowell
Director, Energy
Essential Services Commission
Level 37, 2 Lonsdale Street
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Dear Ms McDowell

Electricity Distribution Code – Review of the voltage standards for bushfire, Draft decision, 22 May 2018

Jemena Electricity Networks Vic Ltd (**JEN**) welcomes the opportunity to respond to the Essential Services Commission's (**Commission**) draft decision on the review of voltage standards in the Electricity Distribution Code (**Code**).

The purpose of this review is to make changes to the voltage standards in the Code to facilitate implementation of bushfire mitigation plans mandated in the *Electricity Safety (Bushfire Mitigation) Regulations 2013 (Vic)* (**Regulations**) without breaching the Code.

JEN believes the phase to earth voltage variations standards in Table 1 of the Code should be deleted for voltage levels from 6.6 kV to 22 kV. The proposed amendment would align with the ESC's finding that international jurisdictions did not identify in their regulations setting of phase-to-earth voltage limits[1]

REFCLs have benefits beyond bushfire risk reduction (e.g., safety and reliability benefits). The changes to the Code discourages the distributors to be innovative in rolling out the technology to 11kV and 6.6kV networks when there are benefits to customers in doing so. On that basis, JEN proposes that Table 1A be amended to include distribution voltages of 6.6kV and 11kV.

An alternative approach is to split Table 1 into two tables, one for phase-to-phase and one for phase-to-earth voltage variations.

The Commission has proposed a number of amendments to the Code. Whilst we agree with many of the amendments, we believe some of amendments can be more straightforward. Further, we consider some of the amendments are not necessary.

JEN proposes changes to the Commission's new definition of REFCL

REFCL is an acronym for 'rapid earth fault current limiter' device. The term REFCL includes other devices such as ASC[2] and GFN[3], which are all designed to reduce earth fault current and the risk of bushfire start. The performance standards of bushfire mitigation plans, referred to as '*required capacity*' in Regulations, is based

[1] Essential Services Commission Electricity Distribution Code – Review of voltage standards for bushfire mitigation, draft Decision, footnote 6, p 10.
[2] ASC means Arc Suppression Coil, a REFCL component in all resonant earthing schemes.
[3] GFN means Ground Fault Neutraliser, a REFCL product manufactured by Swedish Neutral AB.

on a particular type of REFCL (GFN). JEN does not support reference to the Regulations in the definition of REFCL in the Code as it would make REFCL product specific.

Furthermore, JEN proposes to remove the reference to 22kV in the definition of 'REFCL condition'.

JEN proposes the definition of REFCL under clause 19 (Definitions) be modified as shown below so that it is generic.

> ***"REFCL or REFCLs*** means Rapid Earth Fault Current Limiter. It is a technology that quickly limits earth fault current[4]. ~~, which as minimum satisfies the *required capacity* as defined by the *Electricity Safety (Bushfire Mitigation) Regulations 2013*.~~"

JEN proposes the definition of "REFCL condition" under clause 19 (Definitions) be modified as shown below.

> "***REFCL condition*** means operating conditions on the ~~22kV~~ ***distribution system*** caused by the proper operation of ***REFCLs*** which results in the neutral reference of the three phase ***distribution system*** moving to allow the phase to earth voltage to approach a value close to the phase to phase voltage. To avoid doubt, the term 'operating conditions on the ~~22kV~~ ***distribution system***' in this definition extends up to but not beyond any device or plant which is functionally equivalent to an isolating transformer."

JEN proposes amendment to clause 4.2.2

JEN believes the phase to earth voltage variations standards in Table 1 of the Code should be deleted for voltage levels from 6.6 kV to 22 kV. The proposed amendment would align with the ESC's finding that international jurisdictions did not identify in their regulations setting of phase-to-earth voltage limits.[5]

We propose the phase-to-earth voltage variations limits in Table 1 for voltage levels from 6.6 kV to 22 kV be deleted.

Amendments to clauses 4.2.4 and 4.2.6

JEN does not support amendments to clauses 4.2.4 and 4.2.6.

New clause 4.2.4(b) could be interpreted as requiring a distributor to put into service REFCLs during high bushfire risk season only in order to minimise the frequency of the operation of the REFCLs. When this matter was discussed in the meeting held by the Commission on 13 May 2018, the Commission explained that the intention of the clause is to require distributors to undertake best asset management practices—such as maintenance of pole, pole-top structures, clearance of vegetation from overhead lines, etc.—to minimise the frequency of REFCL operations, in other words minimise phase to earth faults.

Existing clause 3.1 on good asset management requires distributors to adopt good asset management practices in the provision of distribution services including quality

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[4] REFCL Technologies Test Program - Final Report, Marxsen Consulting Pty Ltd, 4 December 2015, p 6.

[5] Essential Services Commission Electricity Distribution Code – Review of voltage standards for bushfire mitigation, draft Decision, footnote 6, p 10.

and reliability of supply. Moreover, Victorian electricity distributors are subjected to reliability incentives scheme[6] which puts sufficient discipline on distributors to minimise network faults.

For the above reasons, we consider clause 4.2.4(b) redundant and suggests it be deleted.

Amendment to clause 4.2.6 includes an additional requirement to monitor "any voltage variations outside the limitations specified in Table 1A and the occurrence and the duration recorded at each zone substation where the distribution system is operating under the REFCL condition". Given that the operation of a REFCL has no impact on the phase-to-phase voltages, the additional requirements are redundant and should be deleted.

If you have any questions in relation to the submission, please contact Din Mafaakher [redacted] or by email to [redacted].

Yours sincerely

Johan Esterhuizen
General Manager Asset Strategy Electrical

[6] Australian Energy Regulator, Electricity distribution network service providers, Service target performance incentive scheme, 1 November 2009.