

2009 VICTORIAN BUSHFIRES ROYAL COMMISSION

**SUBMISSIONS – COLERAINE FIRES (PERSONS REPRESENTED
BY MADDENS LAWYERS AND HUNTER NEWS GROUP)****1 SUMMARY**

- 1.1 The Coleraine fire started when a tie wire that held a SWER conductor on top of pole 3 on private farm land at 175 Balochile Road, Coleraine failed causing the conductor to fall and remain suspended between poles 2 and 4, the suspended conductor struck trees between poles 3 and 4 resulting in arcing that ignited foliage which then fell to the ground – and lead to a grass fire.
- 1.2 The electricity assets involved are part of the Powercor distribution network.
- 1.3 The subject power line ran generally east/west. It was known or should have been known to Powercor that it was a line in respect of which there was a significant risk of conductor or conductor tie wire failure. The knowledge was to be had from:
 - (a) the age of the wire;
 - (b) industry knowledge, publications and company records that there was a risk of wire failure:
 - (i) in wires over 20 years old;
 - (ii) in wires subject to Aeolian vibration;

- (iii) when the span either side of a subject pole was of significant inequality in length.
 - (c) similar failures occurring on the same spur line or in the district of conductors and ties installed at the same time as the subject wire.
 - (d) pole 3 being slightly divergent from poles 2 and 4.
- 1.4 The conductor was reattached to the pole on 7 February 2009 and contrary to the Submission of Counsel Assisting at 3.5 there has otherwise been no change to the pole top assembly. (See photo BFP.003.001.0002 and evidence of Steven Cooper at transcript 7532)

2 IMMEDIATE CAUSE

- 2.1 The subject power line is the Colfitz North spur SWER line running west from a junction in Balochile Road, Coleraine. The line was constructed by the State Electricity Commission (SEC) in or about 1961 or 1962. There is no record of any work having been done upon the line, at or about pole 3, since its construction.
- 2.2 The conductor was held onto a pole top insulator with a tie wire made of galvanised soft steel.
- 2.3 The tie wire holding the conductor fractured in 2 places on either side of the insulator. The fractures of the tie wire occurred:

(a) as to the first fracture at some time prior to 7 February 2009;

(b) as to the second fracture probably on 7 February 2009.

2.4 The fractures in the tie wire occurred because of fatigue factors all of which were known to Powercor. These factors included:

(a) the age of the wire and associated corrosion;¹

(b) the effect of wind and in particular aeolian vibration causing lateral movement of the conductor: see page 30 of SEC Overhead Line Design Manual Volume 1 (dealing with conductor vibration control)²;

(c) the differential span length on either side of the pole with the span from pole 2 to pole 3 was 173 metres, and pole 3 to pole 4 was 365 metres;

(d) a slight divergence in the direction on the line pole 3.³

2.5 The fracture of the line was caused by the concurrence of foreseeable events. The weather conditions on 7 February 2009 were hot and windy but not extreme (evidence of Andrew Spears transcript 7527) that these weather conditions have occurred frequently in the past, were to be anticipated and are

¹ That ageing assets cause failure is in accord with the SEC Overhead Line Design Manual and also in Powercor document PAL019.001.2355 and consistent with the record of conductor failure maintenance of 7 February 2002 which will be the Powercor record of conductor failure maintenance 7 February 2002 WIT705.001.0005.

² BCA003.003.0386

³ Warren Coop, VPO300.004.0063 and photograph VPO300.004.0171

expected to occur in the future, and were within the design parameters for this line.

3 POINT OF IGNITION

- 3.1 That the cause of the fire was the dislodged conductor is accepted by all who have investigated the fire, and by the owner of the asset, Powercor. The initial investigation into the ignition point of the fire indicated it was probably at the point of where the conductor struck pole 3. Later closer investigation, in particular by Warren Knop led to him concluding the fire started in the gully by sparks or flammable foliage caused by contact between a tree and the line falling to the ground and igniting the debris on the ground (VPO300.004.0071).
- 3.2 The marks upon the tree and the marks upon the conductor were consistent with arcing at that point sufficient to ignite the tree or parts of the tree and to start the fire. Failure of the fuse to operate in such event was within its design parameters (McDonald WIT7001.001.0010).
- 3.3 There are no factors contributing to the cause of the fire that are the responsibility of an individual, government authority or corporation save for Powercor.
- 3.4 Powercor inherited a system that they knew by 2009 was of an age and in an environment that there is a risk of failure of conductors or tie wires.

3.5 The particular matters indicating it was an at risk line include in addition to the matter referred to in 2.5 hereon:

- (a) the landscape of which the line travelled making it subject to wind influences;
- (b) there being no dampeners or armour rods fitted to the line;
- (c) other failures in the some SWER lines (see Ian Wall WIT.7509.001.0003_R para 31 of a tie wire failure on the same line four years earlier and Matthew Fitzgerald WIT.7510.001.003_R of a tie wire failure on this father's property some four or five years beforehand).

3.6 In response to the risk factors on this power line, Powercor implemented and maintained an inspection and maintenance system which was inadequate in that it:

- (a) involved no pole top inspection;
- (b) did not respond to other failures in the area;
- (c) had no reliability maintenance or replacement criteria;
- (d) knowing that the line was subject to Aeolian vibration and other wind influences, did not include retrofitting of armour rods or other dampeners;

- (e) it was a system primarily of rectification of faults on a SWER line rather than pro active replacement and maintenance for the avoidance of faults.

3.7 It is submitted that contributing factors to the adoption by Powercor of a reactive maintenance system include:

- (a) the fee structure adopted in the industry and associated penalties;
- (b) the fact that reactive maintenance is not in any way punished on SWER line failures - loss of service does not even require notification until one week of customer service is lost, and most reactive maintenance can be completed before such loss occurs on a SWER line because of the limited customers service;
- (c) the passive role adopted by Energysafe Victoria in the design and implementation of regulations, particularly in relation to inspection and a reliability maintenance program for tie wires and conductors;
- (d) the failure to document and/or implement an appropriate system for post mortem of failure and predictability of failure as was evidenced by the inability of Powercor to put before the Commission any detailed analysis of a reliability maintenance program or failure risk even though its documents did show an increased rate of failure with age.

