Electricity Engineers' Association

Peter Berry –EEA Executive Director

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Updates to HB331 –Overhead line design manual

Tony Raper -18/6/19

Significant enhancements made in this edition (2019) of the Handbook include the following :

(a) Safety in design principles (new).

(b) Electromagnetic fields (updated and NZ requirements included).

(c) Earthing guidelines (updated and NZ requirements included).

(d) Design and construction in bushfire prone areas (new).

(e Safety by design for poles in clear zones (new).

(f) Non -conventional conductors (updated).

(g) Using computer programs for layout design (updated).

(h) Concrete poles (updated).

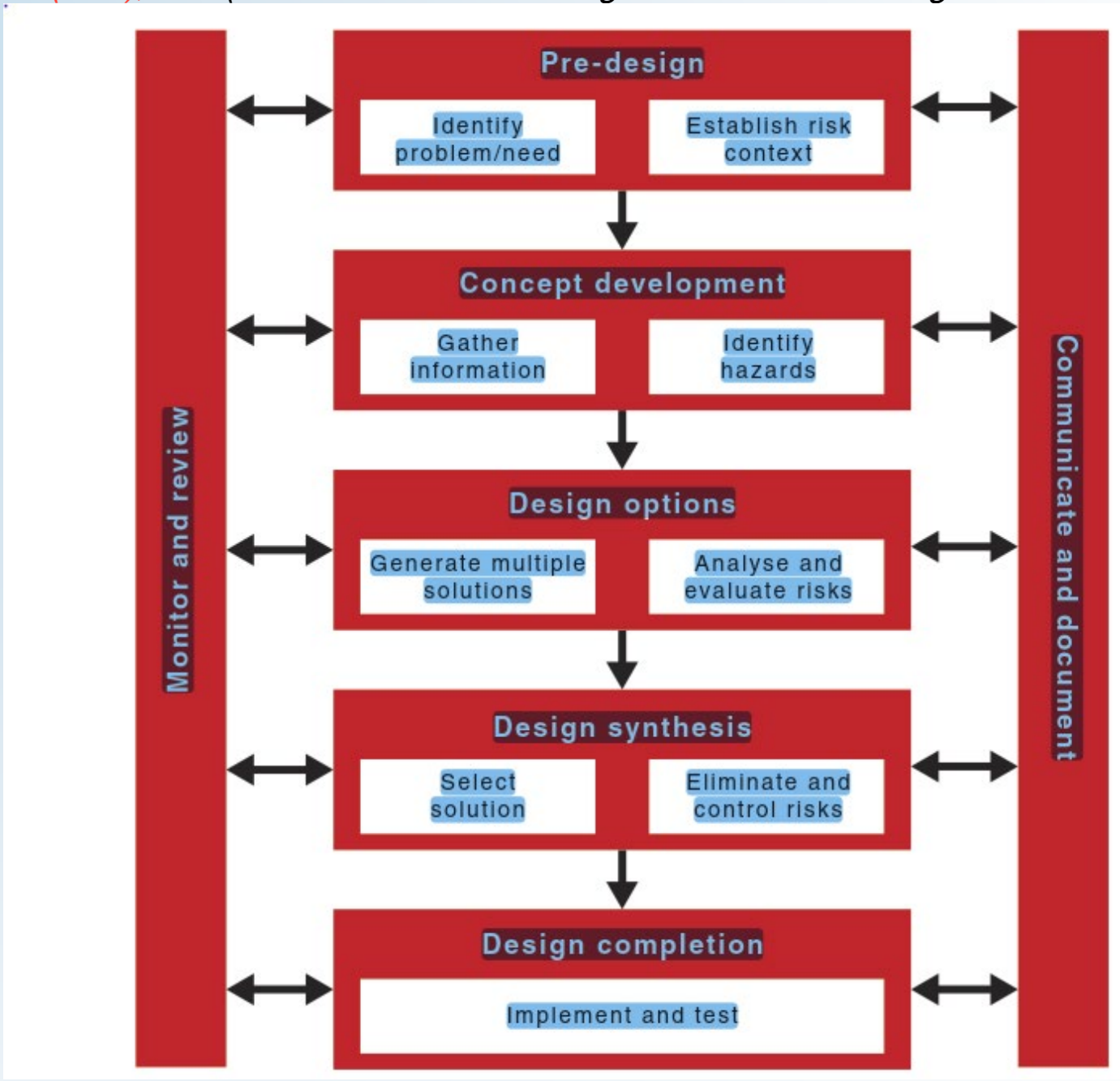
(i) Stay analysis for variety of stay types (new).

(j) High voltage live working considerations in design (new).

(k) Residual static loads (updated with new formulas).

(l) Vegetation management and clearing (updated with risk included and allowance for reduced wind in dense vegetation).

(a) Safety in design principles (new); *(www.safeworkaustralia.gov.au/safe -design#a -safe -design -approach)*



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(b) Electromagnetic fields (updated and NZ requirements included).

- *"The ENA EMF Management Handbook provides guiding principles for the application of prudent avoidance/precaution in relation to EMF."*

(c) Earthing guidelines (updated and NZ requirements included).

- *"In New Zealand the risk-based approach is covered in the EEA Guide to Power System Earthing Practice and a case study is given"*

(d) Design and construction in bushfire prone areas (new); *Royal Commission, Victoria*

- *ENA Doc 027-2010, ENA technical report —Guide for the selection and management of poles to reduce damage and loss when they are exposed to bushfires*
- *ENA Doc 026-2010, ENA guideline for the management of burning and fire-damaged CCA impregnated poles and crossarms*

(e Safety by design for poles in clear zones (new).

- *For guidelines in NZ, designers should refer to the New Zealand Utilities Advisory Group (NZUAG) National Code of Practice for Utility Operators' Access to Transport Corridors (the Code); agreed outcomes between corridor managers and the various utilities within their districts;*

(f) Non -conventional conductors (updated).

- *Non -conventional conductors may be of a special shape or construction and may operate at temperatures for extended periods greater than 100 ℃*

(g) Using computer programs for layout design (updated).

- *Modern computer programs can be used to spot structures, check clearances to obstacles and provide a line layout more efficiently than previous traditional methods .*

(h) Concrete poles (updated).

- *Additional clauses provide additional design information as well as the manufacture and testing processes .*

(i) Stay analysis for variety of stay types (new).

- *Section added specifically discussing stays; glossary, design & options*

(j) High voltage live working considerations in design (new).

- *In New Zealand, refer to the New Zealand Electrical Code of Practice for High Voltage Live Line Work (NZECP 46:2003) and Electricity Engineers' Association (EEA) of NZ Inc Guides —*
- *(i) Guide for the Assessment of Work Methods to Undertake High Voltage Overhead Line Work; and*
- *(ii) New Zealand Electrical Code of Practice for High Voltage Live Line Work (NZECP 46) —Industry Practice Note.*

(k) Residual static loads (updated with new formulas).

- *Conductor tension governing conditions table revised & rationalised; e.g. ice loading + wind –maximum tension - 0.9 x CBL*

(l) Vegetation management and clearing (updated with risk included and allowance for reduced wind in dense vegetation).

- *The ENA and EEA in New Zealand has produced a guideline titled Risk Based Vegetation Management Guide*
- *There has been contention that the vegetation clearing profiles are conservative and have resulted in high cost of vegetation management for electricity utilities.*
- *In areas of heavy or dense vegetation, the vegetation can provide wind shielding, and a reduced wind pressure may be considered for the conductor blowout calculations; introducing span reduction, vegetation shielding and net porosity factors.*

HB 331 – due out shortly, (but is currently undergoing Australian standards peer review)

Thank you!

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