
Substation Maintenance Instruction

PRIMARY SYSTEMS	Document No. SMI 161 Amendment No. 0 Approved By CE Approval Date 26/6/2015 Review Date 26/6/2018
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SMI 161 Condition assessment of assets using health index

SECTION 1 - INTRODUCTION

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1.1 Purpose

To set out in detail the guidelines for replacement of major primary system assets based on condition assessment using health index.

1.2 Scope

The scope of this document covers the procedure to be followed by Endeavour Energy employees when identifying major primary system assets for replacement. This includes health index development methodology and individual asset class replacement criteria based on the health index.

This instruction is to be read in conjunction with all relevant Substation Maintenance Instructions and Mains Maintenance Instructions that are applicable to each asset included in this standard.

1.3 Reference

- Company Policy 9.2.5 - Network Asset Design
- Company Policy 9.9.1 - Network Asset Maintenance
- Company Procedure GRM 0003 - Risk Management
- Company Procedure GAM 0064 – Quantitative determination of reasonably practicable risk control measures when assessing health and safety risks
- Earthing Design Instructions (EDI)
- Mains Maintenance Instructions (MMI)
- Substation Design Instructions (SDI)
- Substation Maintenance Instructions (SMI)
- Network Management Plan December 2013 Review
- Endeavour Energy Electrical Safety Rules
- *ENA National Electricity Network Safety Code* (Doc 01-2008)
- *Electricity Supply (Safety and Management Plans) Regulation* 2008
- *Work Health and Safety Act* 2011
- *Work Health and Safety Regulation* 2011
- AS/NZS 60137:2008 - Insulated bushings for alternating voltages above 1000V (IEC 60137, Ed. 5.0 (2003) MOD)
- AS/NZS 60076.3:2008 - Power transformers Part 3: Insulation levels, dielectric tests and external clearances in air (IEC 60076-3, Ed. 2 (2000) MOD)
- IEC 61620 - Insulating liquids –Determination of the dielectric dissipation factor by measurement of the conductance and capacitance – Test method
- AS 2467:2008 – Maintenance of electrical switchgear
- AS 3000:2007 – Wiring Rules
- AS 60044.1-2007 – Instrument transformers – Current transformers
- AS 60044.2-2007 - Instrument transformers - single phase inductive voltage transformers
- AS 60044.5-2004 - Instrument transformers – capacitor voltage transformers
- AS 2676.1:1992 – Guide to the installation, maintenance, testing and replacement of secondary batteries in buildings, vented cells
- AS 2676.2:1992 – Installation, maintenance, testing and replacement of secondary batteries in buildings, sealed cells
- AS/NZS 4029:2:2000 – Stationary batteries, lead acid, valve regulated type
- AS 4029.1:1994 – Stationary batteries, lead acid, vented type
- AS 3731.1:1995 – Stationary batteries, nickel cadmium, vented type
- AS 4044:1992 – Battery chargers for stationary batteries

- SA/SNZ HB 89:2013 Risk Management – Guidelines on risk management techniques

1.4 Definitions and abbreviations

CB

Circuit breaker

DDF

Dielectric Dissipation Factor

DGA

Dissolved Gas Analysis

DP

Degree of Polymerisation of the paper insulation

Ellipse

Endeavour Energy asset data base

Furan

compounds generated from the oxidation of paper

HI

Health index

HV

high voltage

IFT

Interfacial tension

IR

insulation resistance

LV

low voltage

OLTC

On Load Tap Changer

SAN

Statement of Asset Need

SF₆

Sulphur hexafluoride

TEV

transient earth voltage

TX

transformer