

Australian Capital Territory

Utilities (Technical Regulation) (Light Rail Regulated Utility (Electrical) Network Code) Approval 2021

Disallowable instrument DI2021-210

made under the

Utilities (Technical Regulation) Act 2014, section 14 (Technical codes—approval)

1 Name of instrument

This instrument is the *Utilities (Technical Regulation) (Light Rail Regulated Utility (Electrical) Network Code) Approval 2021*.

2 Commencement

This instrument commences on the day after it is notified.

3 Approval

I approve the Light Rail Regulated Utility (Electrical) Network Code 2021 (the Code) as set out in the schedule.

4 Public access

Electronic copies of the Code are available on the Access Canberra website at <https://www.accesscanberra.act.gov.au/s/article/utilities-technical-regulation-tab-related-resources>. No charge will apply.

The Code is available for inspection upon request by the public between 8:30am and 4:30pm, from Monday to Friday except for public holidays, at the Access Canberra Land, Planning and Building Services Shopfront at 8 Darling Street, Mitchell. Please contact the Access Canberra Land, Planning and Building Services Shopfront on the details below for more information:

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5 Revocation

This instrument revokes the *Utilities (Technical Regulation) (Light Rail Regulated Utility (Electrical) Network Code) Approval 2016 (DI2016-18)*.

Shane Rattenbury MLA
Minister for Water, Energy and Emissions Reduction

12 July 2021



Australian Capital Territory

Light Rail Regulated Utility (Electrical) Network Code

A technical code made under section 14 of the
Utilities (Technical Regulation) Act 2014

June 2021

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1 INTRODUCTION

1.1 Technical Codes

- (1) The Light Rail Regulated Utility Network Code (this Code) is a technical code under part 3 of the *Utilities (Technical Regulation) Act 2014* (ACT) (the Act).

1.2 Regulated Utility to Comply with Technical Codes

- (1) Under section 14 of the Act, the Minister may approve a technical code as recommended by the Technical Regulator. If this Code applies to a regulated utility and the regulated utility fails to comply with this Code and is negligent in compliance activities in relation to this Code, the offence provisions under section 16 of the Act may apply.

2 PURPOSE AND APPLICATION OF THIS CODE

2.1 Purpose

- (1) This Code provides technical requirements for a light rail regulated utility (light rail utility) to design, construct, test and commission, operate and maintain, augment, expand and decommission the light rail regulated utility network (light rail utility network) in a safe, reliable and efficient manner and in a way that prevents interference with, and damage to, other infrastructure including other utilities.

2.2 Application

- (1) This Code applies to a light rail utility that is an operator, or proposes to be an operator, of a light rail utility network.
- (2) The *Utilities (Technical Regulation) (Light Rail—Regulated Utility Service) Regulation 2016* prescribes that a light rail utility service is a regulated utility service for the Act.

2.3 Effect of Prescription of Utility

- (1) Any light rail regulated utility service prescribed under section 10 of the Act is subject to the obligations, rights and entitlements under the Act, unless otherwise limited by a regulation, operating certificate or direction of the technical regulator.
- (2) Regulated utilities that provide prescribed regulated utility services may exercise functions to protect networks and facilities under part 5 of the Act. Part 5 of the Act includes criminal offences that apply to persons who unlawfully interfere with regulated utility networks and facilities.

3 DICTIONARY

The dictionary at the end of this Code is part of this Code.

4 OTHER APPLICABLE CODES

Other technical codes including the Light Rail Utility (Electrical) Boundary Code and the Utility Coordination Code also apply to a light rail utility.

5 ELECTRICAL SUPERVISOR

- (1) During the construction, testing and commissioning phase of a light rail utility network construction project (including in respect of any augmentation or expansion of that light rail utility network), a light rail utility must appoint one or more electrical supervisors to verify all electrical wiring and installation works at nominated inspection and testing points against approved 'issued for construction' design documents.
- (2) A light rail utility must advise the Technical Regulator of the appointment of the electrical supervisor(s) and any changes to the appointment within seven (7) days of the relevant appointment or change occurring.
- (3) An electrical supervisor must be licensed under the *Construction Occupations (Licensing) Act 2004* in the class of 'unrestricted' with no conditions on the licence restricting the scope of electrical work authorised.
- (4) An electrical supervisor must maintain records of verification works, including advice regarding the licensed electrician undertaking any electrical work, and report to the Technical Regulator on any aspect of the electrical work being completed, upon request.

6 CERTIFICATION OF ELECTRICAL WORKS

All electrical wiring work undertaken in the course of the design, construction, testing and commissioning, augmentation or expansion of a light rail utility network must be certified by an Independent Electrical Certifier (IEC).

6.1 Independent Electrical Certifier

- (1) Subject to clause 6.1(3), a light rail utility must appoint an IEC to certify that all electrical works associated with a light rail utility network comply with the relevant Australian Standards and applicable legislation.
- (2) The light rail utility may only commence construction of the light rail utility network after the IEC has certified the design of the relevant sections(s) of the light rail utility network and confirmed that the "Issued for Construction" design drawings comply with the relevant Australian Standards and applicable legislation.

- (3) An IEC must be available to undertake certification tasks prior to commencement of any activity in relation to the electrical works of the light rail utility network during construction, testing, and commissioning.
- (4) The light rail utility must obtain the approval of the Technical Regulator prior to the appointment the IEC.

6.2 Qualifications of IEC

- (1) The IEC can either be a single person or team consisting of two or more persons with knowledge, skill, and competency in relation to the critical components of the light rail electrical network.
- (2) The IEC must meet the following competencies as a minimum requirement:
 - (a) registration as a Registered Professional Engineer of Professionals Australia (RPEng); or
 - (b) certification as a Certified Practising Engineer of Engineers Australia (CPEng)
- (3) Without limiting the above requirements, the IEC must also demonstrate the following competencies:
 - (a) ACT electrician licence issued under the *Construction Occupations (Licensing) Act 2004* in the class of 'unrestricted' with no conditions on the licence restricting the scope of electrical work authorised; and
 - (b) completed competencies recognised within the Australian Qualifications Framework in High Voltage installation auditing; and
 - (c) completed competencies recognised within the Australian Qualifications Framework in Low Voltage installation auditing; and
 - (d) completed competencies recognised within the Australian Qualifications Framework in Direct Current (DC) traction power systems and associated streams such as Earthing and Bonding, and DC Stray Current installations.

6.3 Regular reporting on electrical works

- (1) A light rail utility must provide monthly reports to the Technical Regulator on the progress of electrical works, non-conformance and defects during the construction, testing and commissioning phase of a light rail utility network.
- (2) Monthly reports must contain the following information, as a minimum:
 - (a) details of electrical systems installed and/or commissioned; and
 - (b) details of inspections undertaken and their summary; and

- (c) information and progress about any defects and non-compliances with the approved design issued for construction (new or existing), and their status.
- (3) The IEC must sign and attest to the accuracy of a monthly report prior to submission to the Technical Regulator.

6.4 Energisation of electrical installations

- (1) The IEC must certify high voltage and low voltage electrical installations as compliant with relevant standards and regulations prior to energisation.
- (2) Prior to any part of an electrical installation forming part of a light rail utility network being energised for the first time, the IEC must have submitted written notice advising of the proposed energisation to the Technical Regulator.

7 SAFETY MANAGEMENT

7.1 Network Safety Management

- (1) A light rail utility must develop and implement an Electricity Safety Management System in compliance with AS 5577 Electricity network safety management systems.
- (2) In relation to subclause 7.1(1), the light rail utility may refer to ENA Doc 001 National Electricity Network Safety Code.
- (3) A light rail utility must submit its Electricity Safety Management System to the Technical Regulator upon request.

7.2 Safe Work Zones

- (1) A light rail utility must establish a safe work zone system in consultation with relevant ACT Government regulators including the Work Safe ACT. The safe work zone system must include:
 - (a) necessary information on the procedures that need to be followed by third parties in order to obtain clearance to undertake works;
 - (b) information on the precautions that must be taken when working on, near or adjacent to the light rail utility network;
 - (c) information on any control or exclusion zones that apply to works near, or adjacent to, the light rail utility network;
 - (d) a means to permit individuals or entities to undertake work within the zones, including urgent work and emergency work; and

- (e) criteria that would prohibit work within established control or exclusion zones.
- (2) A light rail utility may refer to a system established for the purpose of the Rail Safety Law as the safe work zone system for the purpose of this Code, provided that the system under the Rail Safety Law meets requirements of the safe work zone system in this Code.
- (3) The safe work zone system may refer to the network protection provisions in part 5 of the Act and relevant criminal offences that apply to unlawfully interfere with networks and facilities.

7.3 Energy Regeneration and Storage

If energy regeneration and storage is to be part of the design of the traction system, associated equipment and related controls must:

- (1) not compromise safety of passengers or any other third party; and
- (2) be consistent with clause 9.1.

7.4 Reverse Power Blocking

A light rail utility must prevent inadvertent energisation of the Alternating Current (AC) supply from the DC network at all times. Where tractions substations are providing supply to the DC traction circuits concurrently, suitable protection and control schemes must be installed and operate instantaneously.

8 ASSET AND OPERATIONAL MANAGEMENT

8.1 Asset Management Plan

- (1) A light rail utility must develop and implement an asset management plan.
- (2) Without limiting clause 8.1(3) below, in preparing an asset management plan, the light rail utility must give consideration to the Asset Management Guidelines published by the Office of the National Rail Safety Regulator as updated from time to time.
- (3) A light rail utility must follow the principles of AS ISO 55000 series - Asset Management or an equivalent standard, in managing its assets.
- (4) The asset management plan must specifically address how the light rail utility will ensure, in respect of the different stages of its network's life cycle:
 - (a) continuity of the light rail utility network operation;
 - (b) public safety;

- (c) safety of light rail utility workers;
 - (d) protection of the environment;
 - (e) asset monitoring and control; and
 - (f) reliability of the light rail utility network.
- (5) A light rail utility may use relevant documentation prepared for the purpose of the Rail Safety Law as the asset management plan for the purpose of this Code, provided that the documentation meets requirements of the asset management plan in this Code.
- (6) A light rail utility must maintain records of its underground and aerial infrastructure. The records must contain sufficient details to enable this infrastructure to be identified and must be available to the public during its business hours.
- (7) A light rail utility must submit its asset management plan to the Technical Regulator upon request.

8.2 Minimum Technical Requirements

- (1) Subject to subclause 8.2(3) of this Code, the light rail utility network must comply with the relevant parts of standards in Schedule 1 during each stage of the light rail utility network asset life cycle.
- (2) For any element of the light rail utility network asset life cycle not contemplated by Schedule 1, the element must comply with any relevant Australian Standards published by Standards Australia, or in the absence of specific Australian Standards, must be informed by the principles of relevant Australian Standards or international standards.
- (3) As an alternative to subclause 8.2(1), a light rail utility may choose to comply with transport standards published by the Asset Standards Authority of Transport for NSW in relation to the stages of the light rail utility network assets' life cycle.

8.3 Lightning Protection

- (1) A light rail utility must, in accordance with, but not limited to, AS/NZS 1768: 2007 Lightning Protection:
- (a) assess whether lightning protection measures for light rail infrastructure are required to reduce lightning damage and its consequential effects; and
 - (b) take appropriate actions to implement identified lightning protection measures.

- (2) When undertaking the assessment in subclause 8.3(1), a light rail utility must consider:
 - (a) the need for protection and the level of protection applied taking into account an assessment of risk due to lightning, and management of that risk to an acceptable level; and
 - (b) the risks and impacts of lightning damage extending beyond a light rail utility network boundary, including the risk of potential damage of adjacent structures and unrelated gas, water and sewerage and electricity assets (including Territory networks and any other light rail utility networks) above and below ground.
- (3) Before a light rail utility is connected to the electricity distributor's network or any other light rail utility network, design of earthing and lightning protection must be approved by the electricity distribution utility or other light rail utility (as applicable).

9 UTILITY LIAISON

9.1 Prudent Avoidance

A light rail utility must take all prudent measures to avoid any adverse impacts upon local infrastructure, including but not limited to any electricity distribution and transmission networks during each stage of the light rail utility network asset life cycle, including design, construction, testing and commissioning, operation and maintenance, augmentation and expansion of the light rail utility network.

9.2 Clearances and Separations

- (1) A light rail utility must ensure its infrastructure maintains minimum clearances to and separations from buildings, vegetation, structures and other circuits.
- (2) A light rail utility must identify minimum relevant clearances and separations in accordance with the principles of:
 - (a) parts 2 and 3 of the *Utility Networks (Public Safety) Regulation 2001* under the *Utilities Act 2000*;
 - (b) section 3 of AS/NZS 7000 Overhead Line Design —Detailed Procedures; and
 - (c) EN 50122-1 Railway Applications –Fixed Installations– Electrical Safety, Earthing and the Return Circuit - Part 1: Protective Provisions Against Electric Shock.

Subclause 9.2(a) prevails if there is an inconsistency between subclause 9.2(a) and 9.2(b).

- (3) A light rail utility must take reasonable steps to notify the public of the minimum clearance and separation identified in subclause 9.2.

9.3 Electromagnetic Compatibility

- (1) A light rail utility must give consideration to the concepts and practical application of electromagnetically compatible systems over all stages of the light rail utility network asset life cycle, including design, construction, testing and commissioning, operation and maintenance, augmentation and expansion.
- (2) A light rail utility must consider the distinction between electromagnetic compatibility standardised tests and tests carried out at the location where the light rail utility network is planned for installation.

9.4 Electromagnetic Coupling

- (1) A light rail utility must assess the risks of electromagnetic coupling during each stage of the light rail utility network asset life cycle, including design, construction, testing and commissioning, operation and maintenance, augmentation and expansion.
- (2) A light rail utility must mitigate any electromagnetic coupling risk determined to be sourced by its light rail utility network by implementing reasonable design and other operational measures.
- (3) The light rail utility must consult with other utilities on their comments, concerns or issues regarding any electromagnetic coupling risk likely to be sourced from its light rail utility network and undertake mitigation measures if electromagnetic coupling risk is determined to be sourced from its light rail utility network.

9.5 Load Sharing Capacities of the Light Rail Utility Network and the Distribution Network

- (1) A light rail utility's load profile, both integrated across the electricity distribution network and individually at each connection point, must aim to minimise the impact on the supply integrity of the electricity distribution network during normal operation and credible contingency events.
- (2) Supply points from the electricity distributor and traction power connection points for the route length of the light rail utility network must be designed in a such a way that normal operation of a light rail utility network or its operation during contingency events must not compromise the reliability and performance of the light rail utility network or affect the electricity distribution network beyond the limits agreed between a light rail utility and the electricity distributor.
- (3) A light rail utility must ensure that its load profile is coordinated with the electricity distributor for short and long term load fluctuations and that the

electricity distribution network is not compromised with its power quality or adequate capacity during normal operation or credible contingent events.

- (4) When a light rail utility is proposing to connect or merge its light rail utility network with an existing light rail utility network, the relevant light rail utilities must develop an agreement to document their individual commitments and responsibilities for the operation and maintenance of the combined electrical network or connection between the two light rail utility networks and the agreement must include the following
 - (a) details of the commitments and responsibilities of each light rail utility for management of technical considerations, operation and maintenance activities and risks the electrical network(s), liaising with other utilities regarding matters arising from the proposed connection or merging of the electrical network(s), and managing governance and regulatory obligations; and
 - (b) any revised or new conditions required by the electricity distributor for the proposed connection or merging of the two light rail utility networks.
- (5) A copy of the agreement referred to in clause 9.5(4) must be provided to Technical Regulator.
- (6) The electricity distributor must be consulted prior to the agreement being finalised between two light rail utilities regarding the proposed operational controls and working arrangements. Changes caused by operating and maintaining the connected or merged electrical network(s) with respect to changed configuration and loading requirements must clearly identified.
- (7) The Technical Regulator may request from the relevant light rail utilities any additional information in relation to the agreement between the two light rail utilities prior to the proposed connection or merging the networks.

9.6 Mitigation of Harmonics and Maintenance of Quality of Supply

- (1) A light rail utility must address the issues of excessive harmonics and quality of supply sourced from the light rail utility network during each stage of the light rail utility network asset life cycle, including design, construction, testing and commissioning, operation and maintenance, augmentation, and expansion. Excessive harmonics are harmonics that exceed the electricity distributor's requirements or those of another light rail utility.
- (2) Without limiting clause 9, a light rail utility must ensure that issues of quality of supply are addressed in an agreement with the electricity distribution utility.

9.7 Connection Agreement

The light rail utility must negotiate with the relevant electricity distributor in relation to the terms and conditions of a connection agreement for procuring the electricity. Any

connection agreement must consider:

- (1) the Electricity Service and Installation Rules published by the electricity distributor under the Electricity Service and Installation Rules Code, and the relevant Boundary Code;
- (2) ensuring existing and anticipated future network load capacities are configured into the light rail load requirements along the light rail corridor; and
- (3) the load profile of a light rail system, at each point of connection to the electricity distribution network, and as a whole across all points of connection to the electricity distribution network.

10 STRAY DIRECT CURRENT

10.1 Stray Current Working Group (SCWG)

- (1) A light rail utility must manage the risk of damage by stray direct current from its light rail traction supply to metallic assets in the proximity to its light rail utility network.
- (2) A light rail utility must establish a SCWG during the design stage of its light rail utility network.
- (3) Alternatively, upon agreement by the light rail utility chairing an existing SCWG, a light rail utility may instead elect to join an existing SCWG as an equal party. The agreement between the light rail utility chairing an existing SCWG and the light rail utility proposing to become an equal party to the existing SCWG, along with working arrangements between the relevant light rail utilities, must be provided to the Technical Regulator in writing.
- (4) A SCWG must be ongoing until the light rail utility chairing the SCWG ceases its operation or all the light rail utilities of SCWG cease their operation in the ACT.
- (5) A SCWG is responsible for coordination of meetings specific to its own functions and for inviting the utilities identified in its SCWG to attend meetings of the SCWG.
- (6) The following parties are entitled to representation on any SCWG which has been established:
 - (a) stakeholders who have structures or underground assets in the vicinity of the light rail tracks that may be at risk of suffering electrolysis stray current corrosion as a result of stray current from the light rail traction supply, including utilities;
 - (b) the Technical Regulator and government representatives of the Technical Regulator;

- (c) any and all other light rail utilities operating in the ACT; and
 - (d) any other stakeholder as directed by the Technical Regulator.
- (7) From time to time, a light rail utility chairing the SCWG may propose terms of reference of the SCWG to the SCWG members. Notwithstanding this, the Technical Regulator may require that certain terms of reference be adopted by SCWG. Nothing in this clause is taken to limit subclause 10.1(8).
- (8) The role of a SCWG must include:
- (a) making a list of assets that are susceptible to risk of damage arising from stray current emanating from any and all light rail utility networks (susceptible assets) in the vicinity of the light rail tracks; and
 - (b) reviewing and making recommendations in relation to:
 - (i) a light rail utility’s process of approval for the electrical earthing, bonding and cross bonding design, track insulation, and stray current management of the traction system and the related issues raised by stakeholders;
 - (ii) a light rail utility’s process for testing and measurement to monitor stray current during construction and related issues raised by stakeholders;
 - (iii) the results of testing during construction and analysis of those results;
 - (iv) the results of monitoring stray current and assessment of trends in these results during the operation of a light rail utility;
 - (v) other issues as might arise from time to time relating to stray current emanating from the light rail utility network(s) during the operation of a light rail utility; and
 - (vi) the qualifications and experience of persons involved in oversight of the stray direct current management;
 - (c) providing ongoing advice to the operators of cathodic protection schemes installed during the operation of light rail utility networks; and
 - (d) reporting on the above matters to the Technical Regulator.

- (9) In the event of a matter not being resolved by agreement within the SCWG, the matter may be referred to the Electrical Technical Reference Group in clause 11.

10.2 Stray Current Management Plan

- (1) A light rail utility must develop and implement a stray current management plan to manage the risk of damage by stray direct current from its light rail traction supply to metallic assets in the proximity.
- (2) A light rail utility must create the stray current management plan in consultation with the SCWG.
- (3) The stray current management plan must include:
 - (a) identification of specific structures and underground assets that may be at risk of electrolysis stray current corrosion resulting from the light rail traction supply;
 - (b) ongoing communication with third parties that may have assets at risk;
 - (c) design measures to minimise stray currents;
 - (d) design processes that ensure that third party risks are considered; and
 - (e) a program to monitor stray currents by taking measurements at suitable locations and at suitable intervals for the lifetime of the light rail utility network and address issues as they arise.
- (4) The stray current management plan must be endorsed by the SCWG.
- (5) The light rail utility must submit its stray current management plan to the Technical Regulator upon request.

11 ELECTRICAL TECHNICAL REVIEW GROUP

- (1) At the Technical Regulator's discretion, the Technical Regulator may establish and chair an Electrical Technical Review Group that provides an independent and impartial review during any stage of the light rail utility network asset life cycle, including design, construction, testing and commissioning, operation and maintenance, augmentation, expansion, and decommissioning.
- (2) If an Electrical Technical Review Group is established, the Technical Regulator may invite members including an electricity distributor, to the Electrical Technical Review Group, who are experts in technical fields relevant to the light rail utility network (for example, electricity, gas, water and sewerage utilities, telecommunication bodies, and relevant Territory and industry asset managers).
- (3) Light rail utilities may propose to the Technical Regulator, members for the Electrical Technical Review Group.

- (4) In consultation with stakeholders including the SCWG, the Electrical Technical Review Group may determine limits for the average anodic and cathodic shifts in voltage on various classes of asset as a result of stray direct current during the operation of the light rail utility network.
- (5) In relation to subclause 11(4), the determined limits may be reviewed by the Electrical Technical Review Group upon a request of two or more members of the SCWG.
- (6) The Electrical Technical Review Group may recommend the Technical Regulator to issue a direction that includes a determination made by the Electrical Technical Review Group.

12 TECHNICAL APPROVAL

12.1 Initial Design

When applying for an operating certificate for construction of a proposed light rail utility, a light rail utility:

- (1) must conduct a technical analysis in relation to the matters referred to in this Code with supporting data and references considering, at a minimum, site specific characteristics, and technical feasibility of the proposed light rail utility network asset life cycle;
- (2) must submit the technical analysis with supporting data and references for each technical matter to the Technical Regulator for the purpose of assessing the operating certificate;
- (3) must comply with any requests from the Technical Regulator for additional information such as technical data, schematics, plans and references that support the technical specifications if the Technical Regulator considers that such information would be of assistance; and
- (4) may seek guidance from the Electrical Technical Review Group (if an Electrical Technical Review Group has been established pursuant to clause 11 of this Code) in relation to technical matters related to the design, construction, testing, maintenance and operation of the light rail utility network.

12.2 Design Variations

After receiving an operating certificate for construction of a proposed light rail utility, a light rail utility may apply to the Technical Regulator to vary the design. However, the design change(s) must be reflected in the approved design drawings issued for constructing the proposed light rail utility.

To support a design change application and process, the light rail utility:

- (1) must consult stakeholders that could be affected by such variations. Stakeholders include the SCWG, relevant utilities (including other light rail utilities), telecommunication bodies, and asset managers, including building owners, adjacent to or affected by the existing or proposed light rail utility infrastructure;
- (2) must conduct a technical analysis in relation to the matters referred to in this Code with supporting data and references considering, at a minimum, site specific characteristics, and technical feasibility of the project life cycle;
- (3) must submit the technical analysis with supporting data and references for each technical matter, to the Technical Regulator for the purpose of assessing the operating certificate;
- (4) must comply with any request from the Technical Regulator for additional information such as technical data, schematics, plans and references that support the technical specifications if the Technical Regulator considers that such information would be of assistance; and
- (5) may seek guidance from the Electrical Technical Review Group (if an Electrical Technical Review Group has been established pursuant to clause 11 of this Code) in relation to technical matters related to the design, construction, testing, maintenance and operation of the light rail utility network.

13 EMERGENCY PLANNING

- (1) A light rail utility must comply with the *Emergencies Act 2004* (ACT) and the emergency management plan requirements of the Rail Safety Law.
- (2) A light rail utility must prepare an emergency plan that contemplates response, communication and coordination with emergency management agencies.
- (3) A light rail utility must review an emergency plan annually and submit it to the Technical Regulator for approval by the end of each financial year.
- (4) The emergency plan for a light rail utility must establish a framework for:
 - (a) internal management of emergencies;
 - (b) protocols for complying with relevant agencies under the *Emergencies Act 2004* (ACT); and
 - (c) protocols for complying with any direction issued under the *Emergencies Act 2004* (ACT), including a direction issued by an Emergency Controller appointed under the *Emergencies Act 2004* (ACT).

- (5) A light rail utility may use documentation prepared for the purpose of the Rail Safety Law as emergency plan for the purpose of this Code, provided that the documentation meets requirements of the emergency plan in this Code.

14 TRANSFER OF LIGHT RAIL UTILITY NETWORK

- (1) Prior to a proposed transfer of a light rail utility network to a person who does not hold an operating certificate, the proposed person must apply to the Technical Regulator for an operating certificate. This application must include details of any potential transfer of control or ownership of the light rail utility network.
- (2) The Technical Regulator may give the light rail utility directions in respect of compliance with the Code during and after the proposed transfer.
- (3) The light rail utility must comply, and procure the compliance of relevant third parties, with the direction of the Technical Regulator under this clause.

15 REPORTING

- (1) The Technical Regulator may require the light rail utility to report to the Technical Regulator periodically in relation to:
 - (a) any matter relating to its operating certificate; and
 - (b) its performance against its operation and maintenance.
- (2) The Technical Regulator may audit the light rail utility or request the light rail utility to have an independent audit undertaken, for compliance against the light rail utility's operation and maintenance that relate to components of the electrical network.

SCHEDULE 1 RELEVANT TECHNICAL REFERENCES

- (1) AS1882: Earth and bonding clamps
- (2) AS2067: Substations and high voltage installations exceeding 1 kV a.c.
- (3) AS 2832 series: Cathodic protection of metals
- (4) AS 5577: Electricity network safety management systems
- (5) AS 60038: Standard voltages
- (6) AS ISO 55000 series on Asset Management
- (7) AS/NZS 1429 series: Electric cables—Polymeric insulated
- (8) AS/NZS 1768: Lightning protection
- (9) AS/NZS 3000: Electrical installations
- (10) AS/NZS 3008 series: Electrical installations—selection of cables
- (11) AS/NZS 61000 series: Electromagnetic compatibility
- (12) AS/NZS 7000: Overhead Line Design —Detailed Procedures.
- (13) AS/NZS International Electrotechnical Commission 60947.1 and 2 Low-voltage switchgear and control gear
- (14) EN 50119: Railway applications – Fixed installations: Electric traction overhead contact lines for railways
- (15) EN 50121: Railway applications – Electromagnetic compatibility
- (16) EN 50121-1: Railway applications – Electromagnetic compatibility – Part 1: General
- (17) EN 50121-2: Railway applications – Electromagnetic compatibility – Part 2 : emission of the whole railway system to the outside world
- (18) EN 50121-3-1: Railway applications – Electromagnetic compatibility – Part 3-1 : rolling stock – Train and complete vehicle
- (19) EN 50121-3-2: Railway applications – Electromagnetic compatibility – Part 3-2 : rolling stock – Apparatus
- (20) EN 50121-4: Railway applications – Electromagnetic compatibility – Part 4 : emission and immunity of the signalling and telecommunications apparatus

- (21) EN 50121-5: Railway applications – Electromagnetic compatibility – Part 5: Emission and immunity of fixed power supply installations and apparatus
- (22) EN 50122: Railway applications – Fixed installations
- (23) EN 50122-1: Railway applications – Fixed installations – Electrical safety, earthing and the return circuit - Part 1: Protective provisions against electric shock
- (24) EN 50122-2: Railway applications – Fixed installations – Part 2: Protective provisions against the effects of stray currents caused by direct current traction systems
- (25) EN 50123: Railway applications – Fixed installations – D.C. switchgear
- (26) EN 50124: Railway applications – Insulation coordination
- (27) EN 50125-2: Railway applications – Environmental conditions for equipment - Part 2: Fixed electrical installations
- (28) EN 50125-3: Railway applications – Environmental conditions for equipment - Part 3: Equipment for signalling and telecommunications
- (29) EN 50155: Railway applications – Electronic equipment used on rolling stock
- (30) EN 50159: Railway applications – Communication, signalling and processing systems – Safety-related communication in transmission systems
- (31) EN 50159-1: Railway applications – Communication, signalling and processing systems – Part 1: Safety-related communication in closed transmission systems
- (32) EN 50159-2: Railway applications - Communication, signalling and processing systems – Part 2: Safety-related communication in open transmission systems
- (33) EN 50160: Voltage characteristics of electricity supplied by public electricity networks
- (34) EN 50162: Protection against corrosion by stray current from direct current systems
- (35) EN 50163: Railway applications supply voltages of traction systems
- (36) ENA EG1: Substation earthing guide, and other relevant ENA substation earthing standards
- (37) ENA Doc 001: National Electricity Network Safety Code
- (38) Guide for Measuring of Interference caused by Cathodic Protection and Railway Drainage Systems – NSW Electrolysis Committee

- (39) IEEE 519: Recommended practices and requirements for harmonic control in electrical power systems

DICTIONARY

- (1) **Act** means the *Utilities (Technical Regulation) Act 2014 (ACT)*.
- (2) **Asset Management Guideline** means a guideline for asset management published by the Office of the National Rail Safety Regulator.
- (3) **Asset Standards Authority** is an independent network design and standards authority within Transport for NSW of the NSW Government.
- (4) **Australian Standard** or **AS** means an Australian standard published by Standards Australia current on the date of grant of operating certificate.
- (5) **Australian/New Zealand Standard** or **AS/NZS** means an Australian/New Zealand standard published by Standards Australia current on the date of grant of operating certificate.
- (6) **certification** includes, but is not limited to, observing, reviewing, monitoring, auditing and attesting to the adequacy of design documentation (including approved design drawings issued for construction), project management systems, construction, materials and operation and maintenance procedures.
- (7) **code** means the Light Rail Regulated Utility (Electrical) Network Code [2020].
- (8) **credible contingency events** include the loss of a major element(s) of a light rail utility network such as a transformer, or rectifier, or fault in a section of DC network when a major element(s) of light rail utility network is already out for planned maintenance, or any other event where, to maintain the security of the supply during contingency event(s), other elements of the light rail utility network become critical and stressed.
- (9) **electricity distributor** means a utility that provides an electricity distribution service under section 6 of the *Utilities Act 2000 (ACT)*.
- (10) **electricity distribution network** means an electricity network under section 7 of the *Utilities Act 2000 (ACT)*.
- (11) **Electricity Law** means the *National Electricity Law* and the *National Electricity Rules published by the Australian Energy Market Commission*.
- (12) **Electrical wiring work** has the same meaning as in the *Electricity Safety Act 1971* and licensing requirements apply under the *Construction Occupations (Licensing) Act 2004*.
- (13) **emergency work** means work that must be completed urgently to safeguard life, the environment, plant or property.
- (14) **EN** means a European standard published and maintained by the European Committee for Standardization, the European Committee for Electrotechnical Standardization, or the European Telecommunications Standards Institute.

- (15) **ENA** means a standard published by the Energy Network Association.
- (16) **IEEE** means a standard published by the Institute of Electrical and Electronics Engineers.
- (17) **inspection** means an electrical installation, or part of electrical installations and/or electrical network is verified against its requirements set out in the relevant Australian Standards or other equivalent document meeting requirements of relevant Australian Standards.
- (18) **light rail regulated utility (light rail utility)** means a regulated utility that provides a regulated utility service prescribed by the *Utilities (Technical Regulation) (Light Rail—Regulated Utility Service) Regulation 2016* under section 10 of the Act. Under the Regulation, a light rail utility is a person who provides a service that is a light rail utility service.
- (19) **light rail utility network** means infrastructure that consists of: an electricity network to supply power to rolling stock and associated infrastructure; substations and facilities to supply and regulate power to the network; and any electrical zone related to the effect of stray current or the management of the effect of electrical current, such as cathodic protection. For the avoidance of doubt, it includes rail tracks but does not include rolling stock.
- (20) **light rail utility service** is the supply of electricity from a light rail utility network.
- (21) **minister** means the Minister responsible for administering the Act.
- (22) **Office of the National Rail Safety Regulator** means an independent body corporate established under the *Rail Safety National Law (South Australia) Act 2012* (SA).
- (23) **operating certificate** means a certificate under part 6 of the Act.
- (24) **Rail Safety Law** means the of the Rail Safety National Law as applied under the *Rail Safety National Law (ACT) Act 2014* (ACT).
- (25) **regulated utility** is as defined under part 2 of the Act.
- (26) **Standards Australia** is the national peak standards organisation authorised by the Commonwealth Government to prepare and publish the standards.
- (27) **technical code** means a code approved by the Minister under part 3 of the Act.
- (28) **Technical Regulator** is as defined under part 9 of the Act.
- (29) **transport standard** is a transport standard published by the Asset Standards Authority.

- (30) **urgent work** means work necessary to restore supplies of water, gas, electricity, telecommunications or any other form of basic services (including Territory networks), whether publicly or privately owned.
- (31) **Work Safe ACT** means a statutory office of the Work Safety Commissioner and the Work Safety Council established by the *Work Health and Safety Act 2011* (ACT).