ESR Amendment Advice 2022/1

September 2022

TO: Ausgrid employees,
Contractors to Ausgrid, and Accredited Service Providers.

Amendment of the Ausgrid Electrical Safety Rules

The following amendments have been made in the 2022/1 edition of the Electrical Safety Rules (ESR).

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Clause	Subject	Change
Throughout the document		The title of Technical Guide T0031 has been updated to “Remote Cable Cutting Equipment”.
Throughout the document		The term cable “stabbing” has been removed. The ESR’s now only refer to “remote cable cutting”.
1.1.6	Availability and accessibility of the Rules	Duplication within the clause has been removed. The table of previous editions of the ESR has been removed.
3.1	Authorisations for work	The authorisation to operate mobile plant has been added to the list of authorisations required by the ESRs.
3.1.2	ASP authorisation	Table 2 – ASP authorisations, has been removed as these are set out in ES4.
3.1.8	Authorisation to submit NARs	The annual NAR refresher assessment has been changed from an ESR elective module to the new NAR refresher assessment.
3.1.11	Authorisation to operate mobile plant	This is a new clause detailing the requirement to be authorised to operate mobile plant near or in the vicinity of the network.
3.2.3 Table 5	Class 2D	The scope of the authorisation has been expanded to include providing approval for the making/breaking of bonds/taps by HVLW methods and confirming points of isolation at open bonds/taps.
3.2.3 Table 7	Class 4C	The Class 4C authority has been removed. With the closure of the Lane Cove Test Station, it is no longer required.
3.2.3 Table 8	Class 5B	Removal of the “relay” only limitation for work on protection schemes.
3.2.3 Table 8	Class 5F (old)	A sentence has been added to clarify that Class 5F operators are not required to contact System Control when the operating work only involves street lighting circuits.

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3.2.4	Restricted operating authorities	The allowance for a Class 2D or 2Dh operator to create a common point of isolation between a restricted access permit and a clearance to work on distribution substation LV fuses has been removed. With the allowance of shorted LV onto a restricted access permit, the common point of isolation is no longer required or relevant. The Clause has been amended to clarify that a restricted operator does not need to contact the System/Area Operator when the operating work involves only street lighting circuits for the purpose of street lighting repairs.
4.1.2	When a NAR is required	There are significant changes to this Clause. The situations requiring a Network Access Request (NAR) have been clarified. Tables 10 and 11 have been removed.
5.1.2	Access authorities/permits	Minor wording change to simplify the authorisations to issue and receive access authorities/permits.
5.2.1	When an access authority/permit is required	A dot point has been added to confirm that an access authority/permit is required if there is a reasonably foreseeable risk of the work causing damage to the mains and apparatus.
5.2.3	Cross-referencing access authorities/permits	The exemption to the need for cross-referencing of permits for street lighting circuits has been expanded from LV distributors to include HV mains and apparatus also.
5.5.1	Access Permit for Test and Ancillary Work	Wording rearranged. Requirements for the use of electronic insulation resistance testers >1000V have been clarified. Exemptions have been provided for the application of high or hazardous voltages to: • secondary systems (under certain conditions); and • LV network protectors and ACBs in Sydney CBD substations (where the work is carried out under a Restricted Access Permit).
5.6.1 Table 18	When a Clearance to Work is required	2C operators who have completed CTW training may now issue a CTW for dedicated customer LV circuit breakers in substations. The limitation of work on protection schemes to relays only has been removed. An exemption has been added for SCADA systems. A CTW is not required for data acquisition systems which does not create alarms to, or are not monitored by, System Control.
5.6.2	When a Clearance to Work is not required	Details regarding the safe systems of work for Community Batteries have been moved to a new Section 10.9.
5.7.2	Operating Agreement – isolation for another Organisation	The image of the Operating Agreement has been updated to align with the new Operating Agreement. The Operating Agreement has been

		amended to incorporate the changes for work on or near as set out in the new Chapter 14. There are changes to the steps set out in the numbered points, to align with the changes for work on or near set out in the new Chapter 14.
6.2.3	Protective clothing	Entry to underground cable pits has been added to the situations requiring full length arc rated clothing. The requirement for undergarments to contain less than 10% flammable synthetic material has been changed from “should” to “must”.
6.2.5	Footwear	The requirements for gumboots required by the ESR now specify they must be safety gumboots and must be constructed of either PVC or rubber.
6.2.8	Hats and headwear	This is a new clause which requires any hat or headwear to contain no more that 10% flammable synthetic material and to have no exposed metal eyelets of other or fully exposed conductive components.
6.2.9 Table 20	Emergency rescue kits	The situations in which a LV rescue kit is required have been clarified. A kit is no longer required merely for entry into a substation.
6.2.12	LV detectors	The requirements for, and application of, LV detectors has been centralised and clarified in this Clause. Other clauses regarding the use of LV detectors now reference this Clause.
6.2.21	Cable identification equipment	Minor changes to wording within this clause.
6.2.22	Remote cable cutting equipment	Minor changes to wording within this clause.
6.2.27	Temporary supply points for tools and equipment	The title of this clause has been changed from “Temporary connections for supply of electricity”. The clause has been simplified and the image of gallard terminals removed.
7.5.2	Mobile plant – training and authorisation	The National Units of Competence numbers have been updated. The former mobile plant training courses of 5099 Exemption and ISSC26 have been included. The requirement for annual refresher training for non-electrically qualified plant operators has been removed (the controls for the operation of mobile plant will be included in the annual ESR assessment).
7.5.3 Table 26	Approach distances – mobile plant	Low voltage insulated overhead conductors have been added to Table 26.
7.6.1 Table 27	Vehicles – minimum approach distances	A new clearance of 1.5m from 66kV exposed conductors has now been added to the table.
7.7	Drone	This is a new section which simply states that all drone operations must comply with Ausgrid’s Drone Operation Manual.

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7.8.3 Table 29	Scaffolding	Removal of “horizontal” from the required clearances.
8.1.1	Defining a safe work area	The situations requiring a safe work area to be defined using yellow tape barriers have been more clearly specified.
8.1.2	Taping principles	The requirements for persons entering a safe work area to sign onto the access permit have been clarified, for both tape-in and tape-out situations.
8.1.7	Taping – outdoor switchyards	This is a new clause where information about taping in outdoor switchyards has been moved from Section 8.2 “Applying a Safe Work Area Using Barrier-in Method”. The information is universally applicable to both tape-in and tape-out situations.
8.2.1	Applying a Safe Work Area Using Barrier-in Method	The title of this Clause has changed from “Outdoor Switchyards” to “Erecting the tape barrier”.
8.3.1	Applying a Safe Work Area Using Barrier-out Method	The title of this Clause has changed from “Safe Work Area (Barrier Out Situations)” to “Erecting the tape barrier”.
9.1	Work on or near mains and apparatus	The title and content has been changed from “how to access the network” which was an inaccurate description of the Section.
9.1.1	Work on or near exposed LV	Figures 96 and 97 have been replaced to remove duplication of the text in the steps specified within the clause. Minor changes to wording within the clause.
9.1.2 (previous)	Working with live exposed LV	The previous clause 9.1.2 has been removed as it previously only contained a reference to Section 9.5 for the controls for live exposed LV
9.1.3	Working on or near exposed HV	Figure 98 has been replaced to remove duplication of the text in the steps specified within the clause. Minor changes to wording within the clause.
9.1.5	Work on or near live exposed HV	Minor changes to wording within the clause.
9.2.1	Isolating LV mains and apparatus	For the isolation of LV mains and apparatus, the requirement to disconnect only phase conductors and leave neutral conductors connected has been clarified.
9.2.2	Proving LV de-energised	Details regarding approved detectors have been replaced with a reference to Clause 6.2.11.
9.3.1	Identifying LV cables	The requirement for workers to be authorised to identify cables has been added. The cable identification method of “LV audio frequency injection” in Table 35 has been changed to “Signal generation and detection”. Details of the work method have been replaced by a reference to Technical Guide T0003. A note has been added setting out the requirements when the cable identification methods of Table 35 are not reasonably

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		practicable. This process will replace the former requirement for ESR Exemptions in these situations.
9.3.4	LV cables with exposed conductive sheath or armour	Details of the required specifications for gumboots have been replaced with a reference to Clause 6.2.5.
9.4	LV – connection and disconnection	"Energising and de-energising" changed to "connecting and disconnecting". Customer installations added to the items to which the clause relates. Former Figure 102 removed
9.4.2	Connection and disconnection of installations to the LV network	The term "services" has been changed to "installations" as the hazard exists when an installation is incorrectly connected, not just a service cable. Network Standard NS282 testing is now required for the connection or reconnection* of any installation to the LV network. (* It is not required if an installation is isolated and re-energised only through the operation of a Service Protective Device). The term "reverse polarity" has been replaced by "incorrectly or unsafely" connected installation. The measured values of the tests required by Network Standard NS282 must be recorded. The requirements for the connection of the neutral conductor have changed.
9.4.3	Connection of loads across circuits	This is a new clause prohibiting workers from connecting a load across different LV circuits.
9.5.3	Live LV – operating, testing, & inspecting	The installation and removal of bolt in fuses has been added to the exclusions from this clause.
9.6.3	HV lines with limited isolation points	Associated LV distributors have been included in the scope of access permits issued under this clause.
9.8.1	Earthing and short-circuiting - general	The ability to supervise a trained person applying access permit earths has changed from "a Class 1 operator" to "an appropriately authorised operator".
9.8.5	Removing earthing and short-circuiting equipment	The ability to supervise a trained person removing access permit earths has changed from "a Class 1 operator" to "an appropriately authorised operator".
9.9	HV work - cables	The outline of the section has been added to the introduction.
9.9.3	Identifying HV cables	The requirement for workers to be authorised to identify cables has been added. The cable identification method of "LV audio frequency injection" in Table 37 has been changed to "Signal generation and detection". Details of the work method have been replaced by a reference to Technical Guide T0003. A note has been added setting out the requirements when the cable identification

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		methods of Table 37 are not reasonably practicable. This process will replace the former requirement for ESR Exemptions in these situations.
9.9.5	Identifying sub-transmission cables	The requirement for workers to be authorised to identify cables has been added. The cable identification method of “LV audio frequency injection” in Table 38 has been changed to “Signal generation and detection”. Details of the work method have been replaced by a reference to Technical Guide T0003. A note has been added setting out the requirements when the cable identification methods of Tables 38 and 39 are not reasonably practicable. This process will replace the former requirement for ESR Exemptions in these situations.
9.10.1	Testing with earths removed	This clause has been moved to Section 10.6 “Applying test voltages” and is now Clause 10.6.3. This consolidates testing requirements into Section 10.6.
9.11.2	Induced voltages	The requirement to never remove an in-service cable screen has been moved to the new Clause 9.11.11 “Earth connections to HV mains and apparatus”.
9.11.11	Earth connections to HV mains and apparatus	This is a new Clause setting out the requirements relating to the earth connections of HV mains and apparatus and work on these connections.
9.11.12	Work in earthing systems – temporary connections	This is a new Clause setting out the requirements for temporary bridging leads across connections within earthing systems and the need for a Warning Tag to be attached if a temporary bridging lead is to be left in place.
9.11.13	Work on earthing systems – phase to earth connected apparatus	This is a new Clause prohibiting work on earthing systems that are connected to the following energised apparatus: • SWER substations • NULEC reclosers with internal VTs • S&C Intellirupter reclosers with phase to earth VTs
10.1.1	Safe-to touch testing - methods	Low impedance voltmeters may be used for the purpose of this testing.
10.2.3	Work on or near insulated live OH mains	A sentence has been added to confirm that mobile plant must not be brought into contact with insulated overhead mains.
10.3.1	Street lighting circuits - isolation	This is a new clause requiring street lighting circuit isolation points to be as close as reasonably practicable to the worksite.
10.3.4	Steet lighting – neutral conductors	This is a new clause setting out the requirements for the disconnection of neutral conductors on street lighting circuits.

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10.3.5	Street lighting – additional controls	This clause amalgamates the two previous clauses “Inadvertent parallel” and “Circuits crossing live LV”, as the control of insulating gloves was common in both clauses.
10.4	Mains and apparatus that are not connectable	A sentence has been added to define mains that are “not connectable to the network” as either new mains and apparatus that have not yet been made connectable, or mains and apparatus that have been made permanently disconnected.
10.4.1	Mains and apparatus that are not connectable - Permits	This is a new Clause that consolidates the permit requirements from the other Clauses within this section.
10.4.2	Non-connectable cables	The process for when the cable identification methods of Table 45 are not reasonably practicable has been aligned with the new process for connectable cables.
10.4.3	Overhead HV mains	The permit requirements for work on or near overhead HV mains that are not connectable to the network have been moved to the new Clause 10.4.1
10.4.4	Overhead LV mains	The permit requirements for work on or near overhead LV mains that are not connectable to the network have been moved to the new Clause 10.4.1
10.5.4	Standard vegetation control	Exemptions have been provided from the need for vegetation control authorisation and the need for a safety observer, for electrically qualified Ausgrid employees who carry out vegetation control in emergency situations.
10.6.3	Testing with earths removed	The previous Clause 9.10.1 has been moved to this new clause.
10.8.1	Paralleling	The reasons why workers must advise the System/Area Operator prior to carrying out any LV paralleling work has been removed, as they are contained within Network Standard NS136 (which is referenced by this clause).
11.6	Community batteries	The Rules and safe systems of work applicable to Community Batteries has been moved from Clause 5.6.2 to this Section. A Clearance to Work is now to be used (instead of the previously specified Operating Agreement) to confirm and secure the isolation of the direct distributor to a Community Battery.
11.7	Stand-alone Power Systems (SAPS)	This is a new section outlining the Rules and systems of work applicable to SAPS. (Some Ausgrid network customers will soon be supplied by Stand Alone Power Systems (SAPS) instead of the grid-connected network).
Chapter 12	Previously “Non-Ausgrid Networks”	The previous Chapter 12 “Non-Ausgrid Networks” has now been broken up into four Chapters – 12, 13, 14, & 15

Chapter 12 - new	Interconnected HV mains and apparatus	This Chapter has been extensively rewritten and more clearly sets out the requirements for HV mains that are interconnected with both NSW Network operators and HV customers.
Chapter 13	Working in electrical stations controlled by other organisations	This is a new Chapter drawing out the relevant parts of the previous Chapter 12. There are significant changes to this chapter.
Chapter 14	Working on, near, or in the vicinity of another organisation's mains and apparatus	This is a new Chapter drawing out the relevant parts of the previous Chapter 12. The chapter has been extensively rewritten and now includes the use of Operating Agreements for other NSW Network Operators, as set out in the recently published ISSC37 Guide.
Chapter 15	Work by other organisations near Ausgrid mains and apparatus	This is a new Chapter drawing out the relevant parts of the previous Chapter 12. The chapter has been extensively rewritten and now includes the use of Operating Agreements for other NSW Network Operators, as set out in the recently published ISSC37 Guide.
Chapter 16	Glossary - Personnel	Minor changes to the definitions of: • Accredited Service Provider • Contractor
Chapter 17	Glossary - General	Changes have been made to the definitions of: • Aerial Bundled Conductor • Access Permit Earths • Cage • Catenary wire • Clearance to Work folder • Covered tools • Safe systems of work • Working earths
Chapter 17	Glossary - General	Definitions for the following terms have been added: • Drone • Installation • Remote cable cutting • Substation - chamber
		Definitions for the following terms have been removed: • Cable stabbing • Cross-power source boundary • Cross-zone
Chapter 18	Terminology	The following Acronyms have been added: • GRN • PF • RAGCB • SAPS • SWER

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