Wind Turbine Safety Rules

4th edition

In partnership with

SafetyOn

G+ Global Offshore Wind
Health & Safety Organisation

energy institute
**WIND TURBINE SAFETY RULES**

**Version 1**


**Rules Changes**

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**Definitions**

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The Energy Institute (EI) is the chartered professional membership body for the energy industry, supporting over 23,000 individuals working in or studying energy and 200 energy companies worldwide. The EI provides learning and networking opportunities to support professional development, as well as professional recognition and technical and scientific knowledge resources on energy in all its forms and applications.

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- Ventient Energy
- Vestas

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e: pubs@energyinst.org
Status of the WTSR 4th Edition 2021

G+ and SafetyOn supported by the Energy Institute considers that the Wind Turbine Safety Rules (‘WTSR’), when implemented correctly and appropriately, will:

− Represent industry good practice for safeguarding employees from the inherent dangers that exist from installed electrical and mechanical equipment in wind turbines.
− Assist in the development and application of safe systems of work in a consistent manner and
− Provide a robust approach to demonstrating legal compliance with relevant health and safety regulations.

In order to ensure that the WTSR are implemented correctly and appropriately and are suitable for any set of circumstances, G+ and SafetyOn strongly advise that, prior to the implementation or revision of the WTSR into an organisation’s own health and safety management systems, the WTSR and all the supporting guidance are fully taken into account by a competent person.

It is essential that the final structure, content, and format of any rules applied which incorporate any part of the WTSR are overseen and signed off by a suitable professionally qualified competent person who is familiar not only with WTSR but also with their practical application taking into account site and turbine specific arrangements and all other relevant circumstances.

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FOREWORD

Company ‘A’ Wind Turbine Safety Rules (the ‘Rules’) are provided to ensure that persons working on plant and low voltage apparatus to which these Safety Rules apply are safeguarded from hazards arising from the electro-mechanical system.

The Safety Rules, which are mandatory, are made up of General Provisions and Basic Safety Rules together with sections dealing with Procedures for Approved Written Procedures and Keys, Responsibilities of Persons and Definitions. They are supported by other mandatory and guidance documents.

The statement setting out the Policy, Philosophy and Principles approved by Company ‘A’ as the basis for the Rules is also given. This statement does not form part of the Rules but it is included for the general information of those persons concerned with the application of the Rules.

It is the duty of all persons who may be concerned with control of, and preparation and carrying out of work or testing on or adjacent to, the electro-mechanical system to which these Rules apply to make themselves thoroughly familiar with those aspects of the Safety Rules and support documents appropriate to their particular activities. In addition to any specific responsibilities and requirements imposed by the Rules all persons have a general duty to be conversant with, and have due regard to, statutory requirements relating to and governing any activities with which they have an involvement.

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DEFINED TERMS

SHALL

Where ‘shall’ is used in these rules with no qualification, this indicates a mandatory requirement with no discretion permitted and no judgement to be made.

SHALL, WHERE PRACTICABLE

Where ‘shall’ is qualified only by the word ‘practicable’, a slightly less strict standard is imposed. It means that where it is possible to achieve in the light of current knowledge and invention but bearing in mind the hazards associated with work to be undertaken, then the requirement must be met. One is not allowed to avoid the requirement because of difficulty, inconvenience, or cost.

SHALL, WHERE REASONABLY PRACTICABLE

When ‘shall where reasonably practicable’ is used to qualify a requirement then a judgement must be made as to what is reasonable, taking into account the magnitude of the risk on the one hand and the cost, time and trouble, or effort necessary for averting the risk on the other hand.
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POLICY, PHILOSOPHY AND PRINCIPLES OF THE WIND TURBINE SAFETY RULES

1 POLICY

The wording of the ‘POLICY’ Section is offered as an example.

Each organisation should produce their own wording to reflect their individual Company Health and Safety Policy and satisfy their local legal obligations.

Company ‘A’ considers it a duty, to ensure in accordance with all applicable laws and legislation, so far as is reasonably practicable, the health, safety, and welfare at work of all employees. In particular the provision and maintenance of plant and systems of work that are, so far as is reasonably practicable, safe and without risks to health.

Under our Policy Statement, Company ‘A’ is dedicated to:

− Promote a healthy and safe work environment that engages and empowers employees in Health, Safety and Environmental matters.
− Ensure prevention of injuries and ill health in the work force and our surroundings
− Establish Health, Safety, Security and Social requirements and ensure that partners, suppliers, and contractors work in accordance with them.

All employees are responsible for:

− Co-operating with management and complying with the Company ‘A’ Health and Safety Management System, including these Wind Turbine Safety Rules
− Taking reasonable care of their own health and safety at work, and that of others who may be affected by their acts or omissions
− Reporting shortcomings in health and safety arrangements and any situation at work which presents serious and imminent danger to the health and safety of any individual.

Company ‘A’ is responsible for:

Ensuring that the Wind Turbine Safety Rules are maintained and updated

Monitoring the effectiveness of the Wind Turbine Safety Rules as a part of the internal audit function.
2 PHILOSOPHY

2.1 Wind Farms consist of items of low voltage electrical apparatus and mechanical plant, interconnected to form electro-mechanical systems. These systems, because of their electrical and mechanical characteristics, contain inherent dangers. The systems are designed so that when they are in their normal operating mode, they may be operated without danger if appropriate routine procedures and suitable tools/work equipment are correctly used.

When a Competent Technician is carrying out operational work or testing with the system in its normal operating mode, then this shall be done in accordance with routine operating procedures.

2.2 When work or testing other than operation has to be carried out affecting the plant and low voltage apparatus and it is necessary to change from the normal operating mode or depart from routine operating procedures, it is necessary to specify rules to achieve safety from the inherent dangers.

2.3 A typical Wind Farm consists of two distinct systems – the High Voltage (HV) infrastructure, (parts of which may lie within the wind turbine structure but are not subject to these Rules), and the wind turbines with their associated Plant and Low Voltage (LV) infrastructure, which are subject to these Rules. The boundary between these systems must be clearly defined in Management Instructions for each site and will typically be located between the LV isolator(s) and the associated wind turbine generator transformer.

2.4 For the HV infrastructure, a comprehensive and robust set of HV Safety Rules must be implemented along the lines of electricity industry distribution or electrical and mechanical Safety Rules or their approved equivalent.

2.5 There are some key criteria relating to wind turbines and the associated Plant/LV infrastructure that allow the ‘simpler’ set of Safety Rules described in this document to be applied:

− Wind turbines are relatively simple systems with each turbine on any particular site being a near-identical copy of its neighbours.
− Persons who have been trained to a high degree of competence on those types of turbines and follow a set of task instructions normally issued by the manufacturer.
− Persons generally work in small groups (usually in pairs) on, often, remote sites and under such circumstances the most practicable approach is for them to apply any safety precautions themselves as part of the work package.
− Work or testing on any one turbine is localised in its nature and can generally be carried out with no effect on others on the Wind Farm.

2.6 A further aspect taken into consideration in developing these Safety Rules is the fact that a typical work package on a wind turbine consists of a number of smaller packages of work or testing, each potentially requiring slightly different safety precautions or, in some instances, the need to restore motive power at key points. Conventional permit for work systems have generally been developed for use on relatively complex systems and their use, while possible, does not lend itself to the types of work or testing involved on wind turbines. However, it should be emphasised that the Wind Turbine Safety Rules still require the same standard of safety to be achieved at each and every step of such work or testing.
In addition, the Wind Turbine Safety Rules have been developed to formalise best practice across the industry while building on the existing competencies of individuals.

2.7 It should be noted that the application of any safe system of work normally involves a number of designated individuals, each of whom carries out a specified role. On occasions, in common with other safe systems of work, a small number of people may be involved in implementing the Wind Turbine Safety Rules on a single job and this means that one person may fulfil a number of roles – although extreme care must be taken to ensure that each is fulfilled correctly.

2.8 These Wind Turbine Safety Rules are based on a philosophy that the Rules should briefly and clearly specify those actions that must be implemented and identify those practices which should be followed in order, to establish conditions in which persons who have to carry out work or testing on the plant and low voltage apparatus will be safeguarded from the inherent dangers and to make them ‘safe from the system’.

2.9 Whenever work, (or testing), is carried out affecting plant and low voltage apparatus, which is part of the system, two types of danger may arise:

(i) The first type is danger inherent in the system arising from the design function of the plant and low voltage apparatus, and this philosophy requires that the Rules, when implemented, will achieve the safety of persons at work from these inherent dangers at the commencement and during all phases of the course of work or testing.

(ii) The second type is danger arising from the working environment at and in the vicinity of the work point and not associated with the system. These Rules are not designed to specify the means of establishing safety from the second type of danger, which may arise whenever work or testing is done, for example from methods of work or testing, or means of access, however the Rules allocate responsibility for achieving safety from this type of danger.

2.10 To carry out work, (or testing), affecting plant and low voltage apparatus within a system, the procedure to be observed for each phase of the work or testing may be divided into the following stages:

(i) Making available the plant and low voltage apparatus concerned for the work or testing required

(ii) Establishment of conditions to safeguard persons from the inherent dangers of the system

(iii) Execution of the work or testing required

(iv) Clearance of the plant and low voltage apparatus on completion or termination of the work or testing to confirm that it is in a safe condition for return to service.

(v) Restoration of the plant and low voltage apparatus to its normal operational condition within the system.

Note: Stages (i) to (iv) may be repeated a number of times during any package of work or testing – depending on the complexity of the work or testing.

2.11 To achieve safety within the stages specified above, these Rules require Approved Written Procedures to be put in place and followed for each work package that, for each phase of the work or testing, describe how an Authorised Technician shall:

(i) Transfer control from the Operational Controller

(ii) Establish safe conditions for persons to work or test on the plant and low voltage apparatus.

(iii) Either check that safe conditions have been established for work or testing on plant and low voltage apparatus which has been isolated from the system.
or
(iv) Implement the appropriate specialised procedures which will be applied when work or testing has to be done on plant and low voltage apparatus which remains energised and
(v) Then confirm in writing that it is safe for the commencement of work or testing.
(vi) Supervise safety during the course of the work or testing.
(vii) Confirm that the procedure is complete when the work or testing is finished, (or terminated), before returning the Plant/Low Voltage Apparatus to an operational state and formally transferring control back to the Operational Controller.

This is achieved by following Routine Operating Procedures containing detailed instruction for each step and having Signature Checkpoints at key points in the process.

2.12 The Rules for achieving the safety of persons at work from the inherent dangers of the system are limited, therefore, to specifying in an Approved Written Procedure:
(i) The actions necessary to ensure safety during each of the stages above in which dangers may arise from the design function of the plant and low voltage apparatus
(ii) The responsibilities of persons for ensuring safety during each of the stages above from dangers which may arise from the design function of the plant and low voltage apparatus
and, in relation to the general dangers arising whenever work or testing is performed, the Rules are limited to
(iii) Identifying the person responsible for achieving safety from these general dangers.

The Rules will be supported by Management Instructions (MIs), Routine Operating Procedures and Approved Written Procedures that implement the Rules effectively and efficiently and ensure that the Rules are applied in a consistent manner throughout Company ‘A’.

An Approved Written Procedure shall be created for each work package by a person (normally the external service provider) with adequate expertise and knowledge of these Rules, the plant and the work or testing. Each Approved Written Procedure will then be reviewed, agreed, and approved by the Authorising Engineer for the relevant Wind Farm.
3 PRINCIPLES

3.1 To fulfil the requirements of the philosophy, the following principles have been adopted in formulating the Rules:

(i) The Rules are concerned only with achieving safety for persons
(ii) When work or testing is to be carried out on or adjacent to high voltage apparatus, HV Safety Rules, or an approved equivalent, shall be used
(iii) In the case of low voltage apparatus, the primary means of achieving safety is, if practicable, by isolation from the system(s). If isolation is not reasonably practicable, safety is achieved by the application of specialised procedures as stated on the Approved Written Procedure
(iv) When work or testing is to be carried out on mechanical plant, the primary means of achieving safety is by isolation from the system(s) followed by draining venting, purging and the containment/dissipation of stored energy, as appropriate, except when the work or testing requires the plant to be energised, (for these exceptions the means of achieving safety is by the application of specialised procedures as stated on the Approved Written Procedure)
(v) The fundamental means of protecting persons at work is the application and maintenance of the primary means of achieving safety specified in 3.1(ii), (iii) and (iv) supported by appropriate actions to maintain the effectiveness of the primary means, e.g., locking off isolating devices
(vi) The nomination of persons to carry out defined requirements under the Rules is formal, although part of their normal responsibilities
(vii) The application of the Rules shall ensure that a safe situation exists across all control area boundaries and operational interfaces (e.g., across the boundary with the HV system), be they totally or partially within the jurisdiction of Company ‘A’
(viii) To achieve ‘safety from the system’, that is, from dangers which may arise from the design functions of the plant and low voltage apparatus, each of the five stages referred to in the philosophy, paragraph 2.10, will involve one or more of the following functions:
   (a) ‘Safety Co-ordination’ – which includes
      − Before work or testing commences, a formal release of plant /low voltage apparatus after ensuring that written procedures are in place instructing the precautions necessary to allow the work or testing to be carried out safely.
      − When work or testing is finished, a formal return of plant /low voltage apparatus after confirming any limitations or restrictions and cancellation of the written procedure.
   (b) ‘Making Safe/Restoration of Plant and LV Apparatus’ – which includes:
      − Before each phase of the work or testing commences, taking actions to make plant and low voltage apparatus safe for work or testing and confirming such actions in writing.
      − When work or testing is finished, taking actions to ensure that it is safe to return the plant and low voltage apparatus to an operational condition, record any limitations or restrictions, remove safety precautions to restore the plant and low voltage apparatus to service and confirm such actions in writing.
   (c) ‘Work or Testing’ – which includes:
      − After confirmation that work or testing can proceed, execution of the required work or testing to its completion or termination.
3.2 The above three functions cover separate responsibilities, which are distinct from each other and are treated separately in the Rules.

3.3 The Rules do not state the number of persons necessary to discharge the three functions. However, where more than one member of a work party is able to carry out the role of Authorised Technician, then it must be clear to all parties who is performing that role for the duration of each work period.
4 GENERAL PROVISIONS

4.1 GENERAL SAFETY

In addition to the requirements for establishing Safety from The System, the safety of persons at work shall also be achieved by establishing and maintaining General Safety, at and in the vicinity of the place of work.

Before work or testing starts, it is the personal responsibility of the Authorised Technician or Competent Technician to ensure that actions are taken to establish General Safety at and in the vicinity of the work place.

After work or testing has begun, it is the personal responsibility of all members of the working party to ensure that actions are taken to maintain General Safety at and in the vicinity of the work area and to stop work or testing if an unsafe situation arises. The working party shall also ensure that conditions of other work areas are not adversely affected by the activities for which they are responsible.

The discharging of responsibility for General Safety will be achieved and controlled by ensuring that all activities are in accordance with appropriate instructions and guidance.

4.2 ADDITIONAL SAFETY RULES AND PROCEDURES

In addition to the Wind Turbine Safety Rules, other associated Rules and procedures issued by Company ‘A’, (e.g., Management Instructions, Electrical and Mechanical or Distribution Safety Rules), or any other authorities and the requirements of supporting mandatory documents shall be complied with. Guidance documents should be complied with in accordance with Management Instructions.

4.3 SPECIAL INSTRUCTIONS

Work on or testing of Plant and LV Apparatus to which these Rules cannot be applied, or for special reasons should not be applied, shall be carried out in an Approved manner which shall be confirmed in writing.

4.4 OBJECTIONS ON SAFETY REASONS

Any Person receiving instructions in the application of these Rules shall report to the Person issuing those instructions any objections on safety reasons to carrying them out. Any such objections shall then be dealt with in an Approved manner, which is described in a Management Instruction for that Wind Farm Location.
PART A
THE BASIC SAFETY RULES

A1 APPLICATION OF THE RULES

A1.1 The fundamental protection for persons working on or testing Plant and LV Apparatus from which Danger could arise if such work or testing were carried out with the Plant and LV Apparatus in its normal operating mode is the achievement of Safety from The System. Safety from The System shall be achieved by the fulfilment and maintenance of the safety precautions, procedures and responsibilities specified in these Rules and defined in an Approved Written Procedure for each work package. These Safety Rules shall be applied, therefore, to enable work on and testing of Plant and LV Apparatus to take place without Danger from the System.

A1.2 Plant and LV Apparatus shall be added to and removed from the System only in accordance with an Approved procedure, which will also determine when these Rules and/or associated Safety Rules shall apply, (see 1.4). Any Approved Written Procedures affected by those additions/removals shall also be reviewed and updated, as necessary.

A1.3 Approved Written Procedures shall be reviewed and updated in line with Management Instructions.

A1.4 When work or testing involves HV Apparatus, Approved HV Safety Rules shall be used.

A1.5 There shall, where reasonably practicable, be available up-to-date drawings and records for the electrical installation.

A2 SAFETY PRECAUTIONS FOR WORK OR TESTING ON OR ADJACENT TO PLANT

A2.1 When work or testing is to be carried out on or adjacent to Plant then that work or testing shall be carried out under an Approved Written Procedure.

A2.2 When work or testing is to be carried out on or adjacent to Plant and the means of achieving Safety from The System is by limiting the work or testing or the work area, instructions clearly defining the limits shall be stated in an Approved Written Procedure.

A2.3 Before work or testing is to be carried out on Plant under an Approved Written Procedure:
(i) The Plant on which the work or testing is to take place shall be clearly defined
(ii) Except where the means of achieving Safety from The System is by limiting the work (or testing) or the work area, the Plant shall be Isolated. When Isolating Devices are used, they shall, where practicable, be immobilised and Locked. Caution Notices shall be affixed at all points of isolation. Isolations which need to be removed in order for further work or testing to take place, including those necessary to make available essential testing supplies, may be removed or restored during the course of work or testing, provided Safety from The System is maintained, and the circumstances shall be defined in the Approved Written Procedure
(iii) The contents of the Plant shall be adjusted to a level which avoids Danger and where drains could give rise to Danger, they shall be Locked in the appropriate position.

(iv) Where Danger could arise from pressurisation, the Plant shall be Vented and where vents could give rise to Danger, they shall be Locked in the appropriate position.

(v) Where internal access is required, the Plant shall be Purged if the residue of contents could cause Danger.

(vi) Where Danger could arise from the release of Stored Energy, action shall be taken to contain or dissipate this energy safely.

A2.4 When work or testing is to be carried out on Plant and / or LV Apparatus it may, in certain circumstances, be essential to restore motive power supplies. All such work or testing shall be carried out in an Approved manner under an Approved Written Procedure which shall specify the circumstances and the method of dealing with hazards arising during periods of restoration of motive power. When motive power is to be restored, the requirements, specified in the Approved Written Procedure, shall ensure that Safety from The System is maintained prior to and after removing the isolation that allows this restoration to take place. Those actions shall include the requirement to notify all personnel in the vicinity prior to restoring motive power supplies.

A2.5 Only the work or testing specified on the Approved Written Procedure shall be carried out.

A3 SAFETY PRECAUTIONS FOR WORK OR TESTING ON OR ADJACENT TO LOW VOLTAGE APPARATUS

A3.1 The main Dangers to personnel working on or testing LV Apparatus are electric shock or burns arising from:

(i) The possibility of personnel mistaking that part of LV Apparatus on which it is unsafe to work or test without special precautions, for that which is Isolated and on which it is safe to work or test.

(ii) The possibility of the LV Apparatus being worked on accidentally or inadvertently being made Live.

(iii) Inadequate precautions being taken under Live conditions.

(iv) The uncontrolled release of Stored Energy in the LV Apparatus.

A3.2 When work or testing is to be carried out on LV Apparatus, precautions shall be taken to achieve Safety from The System.

A3.3 Where practicable, the LV Apparatus shall be Isolated. When Isolating Devices are used, they shall, where reasonably practicable, be immobilised and Locked.

A3.4 When work or testing is to be carried out on LV Apparatus, Caution Notices shall be affixed at all points of isolation.

A3.5 When work or testing is to be carried out on or adjacent to LV Apparatus then that work or testing shall be carried out under an Approved Written Procedure.

A3.6 The LV Apparatus on which the work or testing is to take place shall be clearly defined and only the work or testing specified on the Approved Written Procedure shall be carried out.
A3.7 The preferred method is always to work or test on or near LV Apparatus which has been Isolated. This will not always be practicable but no person shall be engaged in any work or testing on or so near any exposed Live LV Apparatus that Danger may arise unless:
(i) It is unreasonable in all the circumstances for it to be dead and
(ii) it is reasonable in all the circumstances to be at work on or near it while it is Live and
(iii) suitable precautions (including where necessary, the provision of suitable protective equipment) are taken to prevent injury.

A3.8 When work or testing is to be carried out on LV Apparatus it may, in certain circumstances, be essential to restore electrical supplies. All such work or testing shall be carried out in an Approved manner under an Approved Written Procedure which shall specify the circumstances and the method of dealing with hazards arising during periods of restoration of electrical supplies. When electrical supplies are to be restored, the requirements, specified in the Approved Written Procedure, shall ensure that Safety from The System is maintained prior to and after removing the isolation that allows this restoration to take place. Those actions shall include the requirement to notify all personnel in the vicinity prior to restoring motive power supplies. The requirements of Rule A3.7 shall be met to justify Live testing. Even though Live testing may be justifiable, it does not follow that there will necessarily be justification for subsequent repair work to be carried out Live. Any subsequent repair work shall be carried out with the LV Apparatus Isolated unless all the criteria listed in Rule A3.7 for Live work are fully met.

A3.9 When work or testing is to be carried out and it is not practicable to isolate the LV Apparatus to remove hazards which could give rise to Danger, or if, during the course of work or testing, it is necessary to remove such isolations, the work or testing shall be done under an Approved Written Procedure, which shall specify the method of dealing with those hazards. This shall include the conditions under which the work or testing is to take place and the safety precautions necessary to prevent injury, including the circumstances and precautions for any Live work or testing justified under Rule A3.7.

A3.10 Where work or testing is to be carried out on LV Apparatus which is part of HV Apparatus or on LV Apparatus which is in proximity to exposed HV Apparatus which may be Live, or become Live, HV Safety Rules or their Approved equivalent shall be used.

A3.11 When work or testing on LV Apparatus requires portable instruments to be used for voltage or resistance measurements on circuits not otherwise adequately fused, the instruments or leads shall be provided with fused protection or other suitable in-built protective devices to safeguard persons from Danger.

A3.12 When work or testing is to be carried out on Isolated LV Apparatus:
(i) LV isolation shall be by the withdrawal of fuse links or other Isolating Devices. Time switches, float switches, thermostats, sequence switching devices or similar automatic switching devices are not Isolating Devices.
(ii) When Isolating Devices are used, they shall, where reasonably practicable, be immobilised and Locked. If this is not reasonably practicable, the fuse links or other Isolating Devices should be removed.
(iii) Where work or testing is to be done on portable or hand-held LV Apparatus, isolation may be achieved by the removal of the plug from the socket outlet provided that the plug remains in sight of the Person doing the work or testing or the plug has a lockable device applied to it which prevents it being inserted into a socket outlet.
(iv) Safety Keys shall be placed in a suitably labelled envelope and, along with any removable Isolating Devices, shall, (except in circumstances when the LV Apparatus is permitted to be made Live, see Rule A3.9), be retained in safe custody by the
Authorised Technician holding the Approved Written Procedure, preferably by retaining them in his personal possession.

(v) For ongoing work or testing, beyond one working day, secure retention of items taken into safe custody by the Authorised Technician shall be in accordance with Management Instructions.

(vi) In order to facilitate the handing over of Isolating Devices and Safety Keys they must be readily identifiable with the Approved Written Procedure and with the LV Apparatus with which they are associated.

(vii) Where work or testing is to be continued by another Authorised Technician, the surrender shall be carried out in line with the requirements of Wind Turbine Safety Rule B2.3.

(viii) Where adjacent exposed Live LV Apparatus is present which gives rise to Danger, work or testing must only be done by an Authorised Technician who has completed an appropriate course of training as defined in Management Instructions and is Appointed for work or testing adjacent to exposed Live LV Apparatus. The Danger associated with any adjacent exposed Live LV Apparatus shall be highlighted in the Approved Written Procedure. The Authorised Technician shall:

- Where practicable, screen off any adjacent exposed or unprotected LV Apparatus which may be considered to be Live.
- Where necessary to prevent injury use Approved insulated tools, stands, mats, insulating gloves or other personal protective equipment as appropriate, and remove metallic objects such as wristwatch, rings, wristlets, cufflinks, pendants, and other items of personal jewellery etc.

(ix) Before work or testing commences the Authorised Technician who is to do the work or testing shall check, by means of an Approved voltage-testing device, that the LV Apparatus on which he is to work or test is not Live. The instrument used should be tested immediately before and after use.

(x) If work or testing is interrupted the Authorised Technician who is to continue the work or testing must first carry out the procedure in Rule A3.12(ix) above.

A3.13 When work or testing is to be carried out on Live LV Apparatus:

(i) Subject to the criteria of clauses Rule A3.7(i), (ii) and (iii) being satisfied, work or testing may be done with the LV Apparatus Live only under the following conditions:

- The fact that the work or testing is to be carried out on Live LV Apparatus shall be highlighted in the Approved Written Procedure which shall specify to the Authorised Technician how the requirements under this safety rule are to be met.
- The work or testing shall only be done by an Authorised Technician who has completed an appropriate course of training as defined in Management Instructions and is Appointed for work or testing on Live LV Apparatus.
- The Authorised Technician who is to do the work or testing shall first remove any metallic objects such as wristwatch, rings, wristlets, cufflinks, pendants, and other items of personal jewellery etc.
- All adjacent metal which is electrically bonded to earth or conductors which are at a different potential to that on which work or testing is to be carried out must be screened with insulating material to avoid Danger. The material used for screening must be of sufficient strength to withstand an accidental blow from a tool without tearing or otherwise ceasing to be effective.
Where necessary to prevent injury, approved insulated tools, insulating stands or mats, insulating gloves, eye protection, faceshields, and protective coveralls, as appropriate, must be used. When considering the extent of Personal Protective Equipment to be used, due account should be taken of the fault level of the circuit concerned and the potential Danger from arcing.

− Only suitable test instruments and test probes should be used.
− Consideration should be given to the Authorised Technician being accompanied by another Authorised Technician(s) if his/their presence could contribute significantly to ensuring that injury is prevented. Any accompanying Authorised Technician should be trained to recognise Danger and if necessary, to render assistance in the event of an emergency.
− Before commencing work or testing in ducting, trenches, or underground distribution boxes, where there is a foreseeable possibility of the presence of gas which might be inadvertently ignited by electric sparks, a Selected Person’s Report shall be obtained. Prior to the commencement of work or testing any additional precautions, specified by the Selected Person’s Report, that are necessary to remove or prevent Danger, shall be implemented in accordance with Management Instructions.

**A4 **OPERATION OF PLANT AND LOW VOLTAGE APPARATUS

A4.1 The operation of Plant and/or LV Apparatus to achieve Safety from The System shall never involve pre-arranged signals or the use of time intervals.

**A5 **DEMARCATION OF WORK AREAS

A5.1 The work area shall be defined clearly and, where necessary, protected physically to prevent Danger to persons in the work area from System hazards adjacent to the work area.

**A6 **IDENTIFICATION OF PLANT AND LOW VOLTAGE APPARATUS

A6.1 Work or testing shall only be permitted to start on Plant and/or LV Apparatus that is readily identifiable, or has fixed to it a means of identification, which will remain effective throughout the course of the work or testing.

**A7 **AUTOMATICALLY OR REMOTELY CONTROLLED PLANT AND LOW VOLTAGE APPARATUS

A7.1 All Plant and LV Apparatus associated with any Wind Turbine shall be considered to be automatically or remotely controlled. Control over the operation of Wind Turbine Plant and LV Apparatus can either be by local, (on site), or remote, (off site) means. The means of control over ‘local’, on site, operation may be physically remote from the Plant and LV Apparatus which is being worked on.

A7.2 When personnel are working on or testing Plant and/or LV Apparatus which has automatic or remote-control features, the main Danger which could arise is from the
operation of the Plant and/or LV Apparatus if these control features have not been Isolated. Where Danger could arise to personnel at work on or testing such Plant and LV Apparatus, then all such automatic or local/remote operation shall be prevented while the work or testing is taking place.

A7.3 Where work or testing is to be carried out on automatically or remotely controlled Plant or LV Apparatus, the precautions taken to achieve Safety from The System shall cause all automatic or remote-control features to be Isolated. This requirement shall also include any local control features. All such isolations shall where reasonably practicable be Locked and remain so for the duration of the work or testing. Caution Notices shall be affixed at all points of isolation.

A7.4 The requirements for achieving Safety from The System from all control features shall be specified in an Approved Written Procedure.

A7.5 If it is essential to restore motive power supplies in order to complete the work or testing on Plant and/or LV Apparatus, such that any automatic, remote, or local control features would become operable, then the Approved Written Procedure shall specify the means of maintaining Safety from The System while those control features are operable.

A7.6 Work or testing on, or the making of adjustments to, the controlling features of Wind Turbine Plant or LV Apparatus while it is in the operating mode shall only be done by an Authorised Technician who has completed an appropriate course of training as defined in Management Instructions and is Appointed for that purpose. The requirements to achieve and maintain Safety from The System shall be specified in an Approved Written Procedure. Before such work or testing commences, consultation shall take place between the Authorised Technician and the Operational Controller. No other work or testing shall be permitted on that Plant or LV Apparatus at the same time.

A7.7 When it is necessary to work or test on, or make adjustments to, the controlling features with those features operational but with the controlled Plant or LV Apparatus not in the operating mode, no other work or testing shall be permitted on that Plant or LV Apparatus at the same time.

A8 EXCAVATION

A8.1 When work or testing at Wind Farm Locations involves excavation then it shall always be undertaken by following the requirements of HV Safety Rules.

A9 CONFINED SPACES

A9.1 When work or testing at Wind Farm Locations requires access to a confined space in which, by virtue of its enclosed nature, there arises a reasonably foreseeable specified risk, (as defined in the Confined Spaces Regulations 1997), then guidance on the precautions to be taken shall be defined in a Management Instruction.

A9.2 In deciding whether there is a reasonably foreseeable specified risk account shall be taken of the nature of the work or testing itself.

A9.3 The detail of the precautions that are required in association with that work or testing, shall be specified in an Approved Written Procedure.
PART B
PROCEDURES AND KEYS

B1  GENERAL

B1.1 Part B of these Rules gives the procedures associated with Approved Written Procedures and Keys. Persons involved in these procedures must understand and enact their respective roles correctly.

B1.2 The Rules concern themselves with the principles of achieving safety from the inherent Dangers of Plant and LV Apparatus. The detailed manner in which the objectives, responsibilities and requirements of Part B of the Rules are to be met shall be subject to Management Instructions.

B1.3 Included in Part B is a process for the Transfer of work or testing being carried out under an Approved Written Procedure. This will apply, for instance, when work or testing continues into a new day, and/or is to be continued by a new Authorised Technician.

B2  APPROVED WRITTEN PROCEDURES

B2.1 PREPARATION

B2.1.1 Written procedures for all ‘work packages’ will be created by a person with adequate expertise and knowledge of these Rules, the Plant/LV Apparatus, and the work or testing itself. These written procedures will then be checked and Approved by the Authorising Engineer, for the relevant Wind Farm, as Approved Written Procedures. Each Approved Written Procedure shall include appropriate Signature Checkpoints at key points for the Authorised Technician to confirm that all safety precautions up to that point have been completed correctly.

B2.1.2 The Approved Written Procedure shall identify all foreseeable circumstances when a Selected Person’s Report is required in order to identify any additional precautions to remove or prevent Danger. Management Instructions shall specify how the requirements of the Selected Person’s Report, including any additional precautions, will be implemented before the work or testing is allowed to proceed.

B2.1.3 Where appropriate the Approved Written Procedure shall state any requirements to provide Personal Supervision and specify the type of person who shall provide it.

B2.2 IMPLEMENTATION

B2.2.1 Work or testing under the authority of an Approved Written Procedure shall be limited to that specified in that Procedure, and only Approved Written Procedures that meet the criteria defined in these Rules shall be used.
B2.2.2 Before work or testing can take place, the Authorised Technician shall be issued with a copy of the Approved Written Procedure in accordance with Management Instructions.

B2.2.3 Before any work or testing can take place under an Approved Written Procedure, the Authorised Technician shall enact the Transfer of Control procedure with the appropriate Operational Controller to release Operational Control of the specified Wind Turbine Generator Plant/LV Apparatus.

B2.2.4 When the work or testing is to be carried out, an Authorised Technician shall implement the safety precautions described in the Approved Written Procedure step-by-step. Any Safety Keys from locks used to secure isolations shall be personally retained by the Authorised Technician in charge of the Working Party.

B2.2.5 An Approved Written Procedure shall be implemented, signed at each SignatureCheckpoint, cleared, cancelled and, where appropriate, transferred by an Authorised Technician.

B2.2.6 When an Approved Written Procedure is in force for work or testing on any items of Plant/LV Apparatus then no other Approved Written Procedure shall be implemented on those same items of Plant/LV Apparatus at the same time.

B2.2.7 When, during the implementation of an Approved Written Procedure, it is identified that additional work or testing, not included in the Approved Written Procedure, is necessary, then such work or testing shall be documented and notified to the Authorising Engineer. The Authorising Engineer shall arrange to prepare a new Approved Written Procedure in accordance with Rule B2.1 to include the additional work or testing. The remaining work or testing under the original Approved Written Procedure shall be terminated under the provisions of Rule B2.3. Work or testing shall then continue by implementing the new Approved Written Procedure.

B2.2.8 Where a Selected Person’s Report identifies any additional precautions required to be taken during the course of work or testing, to avoid System derived hazards, then these requirements shall be followed by the Authorised Technician. Management Instructions shall specify how the requirements of the Selected Person’s Report, including any additional precautions, will be implemented before the work or testing is allowed to proceed.

B2.3 TRANSFER

B2.3.1 Each Approved Written Procedure includes a Surrender Record. The purpose of the Surrender Record is to record the progress of work or testing, that is to be continued beyond one working period, or the point at which that Approved Written Procedure is transferred to a new Authorised Technician.

B2.3.2 The Approved Written Procedure, together with any associated documents, Keys and appropriate items, shall be retained in safe custody during periods when no work or testing is taking place. Management Instructions shall specify the procedures to be followed in order to achieve safe custody. Before being placed in safe custody, Part 1 of the Surrender Record shall be completed by the Authorised Technician.
B2.3.3 When the work or testing is to be resumed by the same Authorised Technician, he/she shall first remove the Approved Written Procedure from safe custody and complete Part 2 of the Surrender Record. The Authorised Technician may now resume the work or testing provided that there are no reasons to believe that the work area/safety precautions may have been tampered with or altered. When there is reason to suspect that the work area/safety precautions may have been tampered with or altered, then the Authorised Technician shall personally review all of the safety precautions AND confirm all Signature Checkpoints prior to continuing the work or testing.

B2.3.4 Where the work or testing is to be continued by a different Authorised Technician, the transfer process shall where reasonably practicable be carried out face-to-face between the two Authorised Technicians, and include all associated documents, Keys and appropriate items. The current recipient Authorised Technician shall sign Part 1 of the Surrender Record, and the intended recipient shall then sign Part 2 and shall personally review all of the safety precautions, including confirming all Signature Checkpoints prior to continuing the work or testing.

B2.3.5 If for any reason it is found necessary to temporarily discontinue work or testing, then this shall be indicated in the Approved Written Procedure and those reasons shall be recorded by the Authorised Technician. This process shall be described in a Management Instruction. The requirements of Rules B2.3.2, B2.3.3 and B2.3.4 shall be followed as appropriate.

B2.3.6 The Operational Controller shall be informed at the start and end of each work period of the operational state of the Plant/LV Apparatus and shall be immediately informed of the details of any transfers of Approved Written Procedures to new Authorised Technicians.

B2.4 CLEARANCE AND CANCELLATION

B2.4.1 When work or testing has been completed, or when the remaining programme of work or testing is to be cancelled, the Authorised Technician shall complete a CLEARANCE Signature Checkpoint to certify:

(i) That all persons working or testing under the Approved Written Procedure have been withdrawn from and warned not to continue work or testing on the Plant and/or LV Apparatus described in the Approved Written Procedure
(ii) Whether or not the work site has been cleared of all tools, gear, and loose material
(iii) Whether or not all guards and access doors have been replaced
(iv) That the Wind Turbine Generator is in a safe condition to be returned to service, and
(v) Note and report any Exception to the Operational Controller and Authorising Engineer in accordance with a Management Instruction.

B2.4.2 The Authorised Technician shall then ensure that all associated documents, Keys and appropriate items are accounted for and that it is safe to remove all remaining points of isolation before completing a CANCELLATION Signature Checkpoint. The Authorised Technician shall now remove any remaining points of isolation and return the Wind Turbine Generator to an operational condition.

B2.4.3 The Authorised Technician shall then enact the Transfer of Control procedure to return Operational Control of the Wind Turbine Generator Plant and/or LV Apparatus to the Operational Controller, notifying them of the completion of work or testing, the
cancellation of the Approved Written Procedure and of any limitations or restrictions affecting the operational condition of the Plant and/or LV Apparatus.

B2.4.4 The completed Approved Written Procedure together with any Selected Person’s Report and other associated documents shall be retained in accordance with Management Instructions.

B3 ROUTINE OPERATING PROCEDURES

B3.1 Routine Operating Procedures, for operational work or testing, shall only be used with the full knowledge and agreement of Company ‘A’.

B3.2 An Authorising Engineer shall agree that the operational work or testing can be carried out without an Approved Written Procedure by following a Routine Operating Procedure. The nature of this agreement shall be confirmed in a Management Instruction.

B3.3 The form of any Routine Operating Procedure shall be determined by Company ‘A’ and detailed in a Management Instruction.

B3.4 Operational work or testing under a Routine Operating Procedure shall only take place following Transfer of Control from the Operational Controller.

B4 LOSS OF SAFETY KEY/APPROVED WRITTEN PROCEDURE OR ABSENCE OF AN AUTHORISED TECHNICIAN

B4.1 Each Wind Farm shall have Management Instructions describing the procedure to be followed in the event of the loss of a Safety Key, loss of an active Approved Written Procedure and absence of an Authorised Technician in receipt of an Approved Written Procedure.
### 1.0 Work Details:

<table>
<thead>
<tr>
<th>Step</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Wind Farm Location: WTG No.</td>
</tr>
<tr>
<td>1.2</td>
<td>Plant/Apparatus Identification:</td>
</tr>
<tr>
<td>1.3</td>
<td>Work/Testing to be Done:</td>
</tr>
<tr>
<td>1.4</td>
<td>Associated Documents:</td>
</tr>
<tr>
<td>1.5</td>
<td>Date of Work:</td>
</tr>
</tbody>
</table>

### 2.0 Transfer of Control (Release):

<table>
<thead>
<tr>
<th>Step</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Time: Operational Controller Print Name:</td>
</tr>
<tr>
<td>2.2</td>
<td>Authorised Technician Print Name:</td>
</tr>
</tbody>
</table>

### 3.0 Establish Safety Precautions:

<table>
<thead>
<tr>
<th>Step</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Establish Local Control of the Wind Turbine</td>
</tr>
<tr>
<td>3.2</td>
<td>Establish General Safety</td>
</tr>
<tr>
<td>3.3</td>
<td>POI Application: Time: Sign:</td>
</tr>
<tr>
<td>3.4</td>
<td>Precautions: I certify that the precautions listed in steps 3.1 to …… above have been completed which establish both General Safety and Safety from The System in order to carry out the work / testing specified in Step 1.3. Signature Checkpoint: ……………………… Time: …………… Date: …………</td>
</tr>
<tr>
<td>3.5</td>
<td>Carry out the work / testing –</td>
</tr>
</tbody>
</table>
### 3.6 Restoration of Motive Power / Supplies:

**YES/NO**

- The following motive power / supplies may be restored: …………………………………
- For the following essential work / testing: ………………………………………………..

<table>
<thead>
<tr>
<th>Operation</th>
<th>Remove</th>
<th>Re-apply</th>
</tr>
</thead>
</table>

### 3.7 End of Work / Testing

### 3.8 POI Removal:

<table>
<thead>
<tr>
<th>Time</th>
<th>Sign</th>
</tr>
</thead>
</table>

### 3.9 Clearance:

I certify that the work or testing under this AWP is now complete and all persons in my Working Party have been withdrawn and warned that it is no longer safe to continue working or testing on the **Plant / Apparatus**.

- All gear, tools and loose equipment have been removed.
- All guards covers and access doors have been replaced.
- The Wind Turbine Generator is in a safe condition to be returned to service.

Except for the following limitations or restrictions: **

…………………………………………………………………………………………………

Signature Checkpoint: ……………………. Time: …………. Date: …………

### 4.0 Return to Service:

#### 4.1 Cancellation:

I certify that all items issued under this AWP have been accounted for and that it is safe to remove all remaining Points of Isolation. The Operational Controller will be informed of the completion of work / testing under this AWP and of any restrictions on returning the **Plant / Apparatus** to its normal operational condition.

Signature Checkpoint: ……………………. Time: …………. Date: …………

#### 4.2 POI Removal: (if required)

### 5.0 Transfer of Control (Return):

#### 5.1 I have informed the Operational Controller …………………………… (PRINT NAME)

- that the work or testing is complete, this AWP is now cancelled, and all Points of Isolation have been removed. I have confirmed any limitations or restrictions on returning the **Plant / Apparatus** to its normal operational condition.

Signature Checkpoint: ……………………. Time: …………. Date: …………
### 6.0 Surrender Record:

<table>
<thead>
<tr>
<th>Part 1</th>
<th>Part 2</th>
<th>Part 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorised Technician surrendering this AWP</td>
<td>Time/Date</td>
<td>Comments: Indicate the point in the work/testing programme reached</td>
</tr>
<tr>
<td>Authorised Technician receiving this AWP</td>
<td>Time / Date</td>
<td>Safety Precautions confirmed</td>
</tr>
</tbody>
</table>

* Delete this Step if Not Applicable  ** Record N/A or NIL if no exceptions
PART C
RESPONSIBILITIES OF PERSONS

C1 GENERAL

C1.1 It is the duty of all Persons who may be concerned with work or testing on Plant and LV Apparatus to which these Wind Turbine Safety Rules apply to implement the Rules and have regard to the supporting mandatory and guidance documents.

C1.2 The responsibilities placed upon Persons for the successful implementation of the Safety Rules may include all or only part of those detailed in this section, depending upon the role of the individual.

C1.3 The written Certificate of Authorisation or Nomination given to Persons included in Part C of the Rules shall indicate the extent of their role in implementing the Safety Rules.

C1.4 Persons involved in achieving Safety from The System to allow work or testing to commence on Plant and LV Apparatus, and its subsequent restoration to service, will have separate identifiable areas of responsibility. Broadly, these are:

(i) ‘Safety Co-ordination’ – which includes:
   − Before work or testing commences, a formal release of Plant/LV Apparatus after ensuring that written procedures are in place instructing the precautions necessary to allow the work or testing to be carried out safely.
   − When work or testing is finished, a formal return of Plant/LV Apparatus after confirming any limitations or restrictions and cancellation of the written procedure.

(ii) ‘Making Safe/Restoration of Plant and LV Apparatus’ – which includes:
   − Before each phase of the work or testing commences, taking actions to make Plant and LV Apparatus safe for work or testing and confirming such actions in writing.
   − When work or testing is finished, taking actions to ensure that it is safe to return the Plant and LV Apparatus to an operational condition, record any limitations or restrictions, remove safety precautions to restore the Plant and LV Apparatus to service and confirm such actions in writing.

(iii) ‘Work or Testing’ – which includes:
   − After confirmation that work or testing can proceed, execution of the required work or testing to its completion or termination.

C2 AUTHORISED TECHNICIANS

C2.1 Authorised Technicians shall have the responsibilities listed below. They must ensure that these responsibilities, which form part of the Safety Rules, are implemented within the limits imposed by their Certificate of Authorisation.
C2.1.1 **Authorised Technicians** shall comply with these Safety Rules when carrying out work or testing under an **Approved Written Procedure**.

C2.1.2 **Authorised Technicians** shall use safe methods of work or testing, safe means of access and Personal Protective Equipment, which is provided for their safety.

C2.1.3 **Authorised Technicians**, when working under an **Approved Written Procedure** or when in charge of additional **Working Parties** under an **Approved Written Procedure**, shall:

(i) Understand the contents and any subsequent actions arising from those contents. This shall also apply to any requirement to implement additional precautions from a **Selected Person’s Report** in line with **Management Instructions**.

(ii) During the course of the work or testing adhere to, and instruct others under their charge to adhere to, any conditions, instructions or limits specified in the **Approved Written Procedure**. This shall also apply to any requirement to implement additional precautions from a **Selected Person's Report** in line with **Management Instructions**.

C2.2 Prior to commencing work or testing and upon completion of work or testing the **Authorised Technician** shall carry out the 'Transfer of Control' process, as follows:

(i) On arrival at the Wind Farm **Location**, the **Authorised Technician** shall contact the **Operational Controller** and report the presence of the **Working Party** on site, giving their name and the names of all other persons in the **Working Party**, the reason for the visit and the approximate duration of their stay.

(ii) The **Authorised Technician** shall then inform the **Operational Controller** of the **Approved Written Procedure** under which the work or testing is to take place and quote its reference number. This reference number shall be then cross-checked by the **Operational Controller** against a list of **Approved Written Procedures** for that Wind Farm **Location**. Any proposed work or testing that does not carry a valid reference shall result in any request for **Transfer of Control** being denied by the **Operational Controller** with the matter then being referred to the relevant **Authorising Engineer**.

(iii) On confirmation of a valid **Approved Written Procedure**, the **Authorised Technician** shall request **Transfer of Control**, i.e., that the Wind Turbine(s) be released into his/her **Operational Control**. The **Authorised Technician** shall then become responsible for the operational state of the Wind Turbine(s). The **Transfer of Control** process will be recorded by both parties in accordance with **Management Instructions**.

(iv) On completion of the work or testing described in the **Approved Written Procedure**, the **Authorised Technician** shall warn all members of the **Working Party** to withdraw from and not to return to the work area, and shall clear/cancel the **Approved Written Procedure**

(v) The **Authorised Technician** shall then inform the **Operational Controller** of the completion of the work or testing, together with any limitations/restrictions on the **Plant/LV Apparatus** and any changes to the operational condition of the **System** concerned. The **Transfer of Control** process shall then be carried out for the operational state of the Wind Turbine(s) to be returned to the **Operational Controller**. The **Transfer of Control** process will be recorded by both parties in accordance with **Management Instructions**.

(vi) If work or testing under more than one **Approved Written Procedure** is planned, then steps (ii), (iii) and (iv) shall be repeated, as necessary. When all work or testing at the **Location** is completed, the **Authorised Technician** shall then carry out the requirements of step (v) for all of the completed **Approved Written Procedures**.
C2.3 Following Transfer of Control, the Authorised Technician is then responsible for the release of Plant/LV Apparatus for work or testing in line with procedures that shall be specified in Management Instructions. These procedures shall include the process of:

(i) Meeting the requirements of Part B of these Rules
(ii) Ensuring that all safety precautions that achieve Safety from The System are completed in line with the Approved Written Procedure
(iii) Instructing other Authorised Technicians to carry out the necessary operations to establish safety precautions which achieve Safety from The System under an Approved Written Procedure for LV Apparatus or Plant, and obtaining confirmation that each instruction has been carried out
(iv) Setting the Working Party to work.

C2.4 The Authorised Technician shall also be responsible for:

(i) Retaining the Approved Written Procedure and associated documents and Keys in safe custody, and correctly implementing the requirements of any Management Instruction to achieve this.
(ii) When in charge of work or testing, provide Immediate Supervision. Alternatively provide Personal Supervision as stipulated in the Approved Written Procedure. During the course of the work or testing, decide whether the work or testing being given Immediate Supervision shall be given Personal Supervision, depending whether those persons working or testing to the requirements of the Authorised Technician understand the conditions, instructions, or limits specified on the Approved Written Procedure
(iii) Warning all persons as quickly as possible to withdraw from and not to continue work or testing, on the Plant and LV Apparatus concerned, until further notice if, during the course of work or testing a hazard which could give rise to Danger arises or is suspected. This situation shall be reported immediately to the Operational Controller and the Authorising Engineer. The Authorising Engineer shall take steps to remove hazards that could give rise to Danger, where necessary by producing a new Approved Written Procedure.

C2.5 When participating in the procedure for the Transfer of an Approved Written Procedure, ensuring that:

(i) All persons working under the Approved Written Procedure have been withdrawn from and warned not to continue with work or testing on the Plant and LV Apparatus concerned. All associated documents, Keys and other items are accounted for and then completing Part 1 of the Surrender Record before placing it in safe custody in line with Management Instructions.
(ii) All persons working under the Approved Written Procedure have been withdrawn from and warned not to continue with work or testing on the Plant and LV Apparatus concerned. All associated documents, Keys and other items are accounted for and then completing Part 1 of the Surrender Record before transferring it face-to-face to a new Authorised Technician
(iii) When resuming work or testing under an Approved Written Procedure as the original recipient completing Part 2 of the Surrender Record
(iv) When resuming work or testing under an Approved Written Procedure as a new recipient completing Part 2 of the Surrender Record. When a face-to-face transfer has not occurred, personally reviewing all of the safety precautions, confirming, and initialing all Signature Checkpoints prior to continuing with the work or testing.
(v) The Operational Controller is informed at the start and end of each work period to confirm the current state of the Plant/LV Apparatus
(vi) The Operational Controller is immediately informed of the details of any transfers of Approved Written Procedures to new Authorised Technicians.
C2.6 Before setting a Working Party to work, Authorised Technicians shall be responsible for implementing the necessary measures to establish General Safety at and in the vicinity of the workplace and ensuring that those measures are maintained throughout the work or testing.

C2.7 When implementing the requirements of an Approved Written Procedure to achieve Safety from The System, correctly implementing the specified procedures before each package of work or testing commences. These shall include:
(i) Meeting the requirements of Part B of these Rules
(ii) Carrying out the instructions contained in the Approved Written Procedure to apply safety precautions. Signing a record to confirm that these actions have been carried out, at the relevant Signature Checkpoint.
(iii) Implementing the necessary procedures to ensure that the safety precautions established to achieve Safety from The System are maintained during the period that the Approved Written Procedure will be in force
(iv) Retaining the Approved Written Procedure and associated documents, Keys, and other items in safe custody, at the point of work or testing, until it is cancelled
(v) Meeting any requirements specified on the Approved Written Procedure to provide Personal Supervision of other persons in the Working Party.

C2.8 When implementing the requirements of an Approved Written Procedure for work or testing which allows for the restoration of motive power supplies:
(i) Meeting the requirements of Part B of these Rules
(ii) Providing Personal Supervision during the work or testing which allows for the restoration of motive power supplies and being responsible for all matters of safety concerned with such work or testing
(iii) Giving instructions for the removal and re-application of those safety precautions, as stated on the Approved Written Procedure, which may be disturbed during the course of the work or testing, while at the same time maintaining Safety from The System
(iv) Implementing procedures to ensure that Safety from The System, and safety from any test equipment, is maintained, as dictated by the test programme.

C2.9 When clearing an Approved Written Procedure, only doing so after all persons working under it have been withdrawn from, and warned not to work or test on, the Plant and LV Apparatus concerned. Where appropriate, they shall ensure that all tools, gear, and loose material have been removed, guards and access doors replaced, the work site left tidy, the Wind Turbine Generator is in a safe condition to be returned to service and the appropriate Exception is noted in the clearance section of the Approved Written Procedure.

C2.10 When cancelling an Approved Written Procedure:
(i) Satisfying him/herself that the requirements of the clearance section of the Approved Written Procedure have been correctly implemented
(ii) Checking that all the items associated with the Approved Written Procedure are accounted for
(iii) Satisfying him/herself as to the operational state of the Plant and LV Apparatus
(iv) Confirming that it is safe to remove all of the remaining points of isolation.

C3 AUTHORISING ENGINEER

C3.1 Authorising Engineers shall have some or all of the following responsibilities within the limits imposed by their Certificate of Authorisation.
C3.1.1 The formal approval of Approved Written Procedures, having confirmed that they include:
(i) All the necessary requirements to establish safety precautions which achieve Safety from The System together with
(ii) All the appropriate Signature Checkpoints and
(iii) Clear guidelines on how Safety from The System will be maintained at all stages of the work or testing from start through to completion.

C3.1.2 Prior to the approval of an Approved Written Procedure, confirming that:
(i) It states whether Plant and LV Apparatus shall be Vented, Purged and its contents adjusted to a level which avoids Danger, and any action to be taken to contain or dissipate Stored Energy
(ii) It states all the foreseeable circumstances when it is necessary to call upon a Selected Person to provide a report specifying any additional precautions to be taken to remove or prevent Danger, which shall then be implemented in accordance with Management Instructions
(iii) It states under what conditions the safety precautions applied are to be removed during the course of work or testing and, where appropriate, specifying the manner in which they may be removed and re-applied such that Safety from The System is maintained
(iv) Safety from The System will be achieved and maintained when the specified requirements are correctly implemented
(v) It states any requirements to provide Personal Supervision and specifies the type of person who shall provide it
(vi) The specified requirements are clear and unambiguous.

C3.2 An Authorising Engineer shall agree to operational work or testing that can be carried out without an Approved Written Procedure by following a Routine Operating Procedure. The nature of this agreement shall be confirmed in a Management Instruction.

C4 COMPETENT TECHNICIAN

C4.1 Competent Technicians shall have the responsibilities listed below. When undertaking agreed routine operation and maintenance work or testing on Wind Turbine Generator Plant/LV Apparatus, by following an appropriate Routine Operating Procedure and using suitable tools/work equipment, without an Approved Written Procedure they shall ensure that these responsibilities, which form part of the Safety Rules, are correctly implemented.

C4.1.1 Competent Technicians shall comply with these Safety Rules when carrying out any operational work or testing under a Routine Operating Procedure.

C4.1.2 Competent Technicians shall use safe methods of work, safe means of access and Personal Protective Equipment, which is provided for their safety.

C4.1.3 Competent Technicians shall ensure that the Routine Operating Procedure is being used with the full knowledge and agreement of Company 'A'.

C4.1.4 Competent Technicians shall follow the safety requirements defined in the Routine Operating Procedure.
C4.2 Prior to undertaking any work or testing under a Routine Operating Procedure the Competent Technician shall obtain the Transfer of Control from the Operational Controller as follows:

i. On arrival at the Wind Farm Location, the Competent Technician shall contact the Operational Controller and report their presence. The Competent Technician shall give their name, the names of all other persons in attendance, the reason for the visit and the approximate duration of their stay.

ii. The Competent Technician shall then inform the Operational Controller of the Routine Operating Procedure under which the operational work or testing is to take place and quote its reference number. This reference number shall be cross-checked by the Operational Controller against a list of Routine Operating Procedures for that Wind Farm Location. Any Routine Operating Procedure that does not carry a valid reference shall result in any request to undertake the proposed operational work or testing being denied by the Operational Controller with the matter then being referred to the relevant Authorising Engineer.

iii. On confirmation of a valid Routine Operating Procedure, the Competent Technician shall request Transfer of Control from the Operational Controller that the agreed operational work or testing be allowed to continue. This Transfer of Control from the Operational Controller shall be recorded in accordance with Management Instructions.

iv. When the operational work or testing described in the Routine Operating Procedure is completed, the Competent Technician shall warn all other persons to withdraw from and not to return to the work area. The Competent Technician shall then inform the Operational Controller that the agreed work or testing is complete and advise of any changes to the operational condition of the System concerned. The completion of the operational work or testing described in the Routine Operating Procedure shall be recorded in accordance with Management Instructions.

v. If operational work or testing under more than one Routine Operating Procedure is planned, then steps (ii) and (iii) shall be repeated, as necessary. When all the agreed operational work or testing at the Location is finished, the Competent Technician shall then carry out the requirements of step (iv) for all the completed Routine Operating Procedures.

C4.3 Before setting a Working Party to work, Competent Technicians shall be responsible for implementing the necessary measures to establish General Safety at and in the vicinity of the workplace and ensuring that those measures are maintained throughout the work or testing.

C4.4 Competent Technicians shall have responsibility for ensuring that all safety precautions, specified on the Routine Operating Procedure, that achieve Safety from The System, are completed before the operational work or testing is allowed to start.

C4.5 Competent Technicians shall always provide Personal Supervision to agreed operational work or testing that is being carried out under a Routine Operating Procedure.

C4.6 Competent Technicians shall warn all persons as quickly as possible to withdraw from and not to continue with the Routine Operating Procedure, on the Plant and LV Apparatus concerned, until further notice if during the course of the agreed work or testing a hazard which could give rise to Danger arises or is suspected. This situation shall be reported immediately to the Operational Controller and the Authorising Engineer. The Authorising Engineer shall then take steps to remove hazards that could give rise to Danger, where necessary by producing an Approved Written Procedure.
C4.7 Competent Technicians shall, on finishing the agreed operational work or testing under a Routine Operating Procedure, ensure that: all persons in the Working Party have been withdrawn from, and warned not to continue work on, the Plant and LV Apparatus concerned, all tools, gear and loose material have been removed from the work area and that the work site is left in a clean and tidy condition.

C5 OPERATIONAL CONTROLLER

C5.1 The Operational Controller is responsible for the Transfer of Control of the Wind Turbine Generator Plant and/or LV Apparatus, as appropriate, to either another Operational Controller or an Authorised Technician after first establishing that the Person requesting the Transfer of Control has the necessary authority to receive it. For Transfer of Control between the Operational Controller and the Authorised Technician the requirements of Rule C2.2 shall be followed.

C5.2 The Operational Controller is responsible for Transfer of Control to a Competent Technician that agreed routine operation and maintenance work or testing can be carried out after first confirming that a Company ‘A’ Routine Operating Procedure is in existence. The Operational Controller shall ensure that the Person requesting Transfer of Control for work or testing under a Routine Operating Procedure has the necessary authority to carry it out and the requirements of Rule C4.2 shall be followed.

C6 SELECTED PERSONS

C6.1 A Selected Person is responsible for using his/her appropriate technical knowledge and experience for making a report and recommendations to overcome hazards which may prevent work or testing being performed safely on Plant and LV Apparatus which has otherwise been made safe.

C6.2 If, prior to the commencement of work (or testing) or during the progress of work (or testing), it is considered necessary, by an Authorising Engineer, to carry out a check on Plant and LV Apparatus or working areas for hazards, the Selected Person shall carry out any tests and examinations he/she considers necessary. A written report shall be prepared by the Selected Person who will be responsible for ensuring that its recommendations, when implemented, will ensure safe working conditions relating to the hazards.
PART D
DEFINITIONS

D1 Apparatus – All LV equipment in which electrical conductors are used, supported, or of which they may form a part, and for which Company ‘A’ has a maintenance responsibility.

D2 Appointed – Designated in writing by Company ‘A’.

D3 Approved
(i) In the case of an Approved Written Procedure means sanctioned for use by the Authorising Engineer
(ii) In all other cases means sanctioned for use by Company ‘A’.

D4 Approved Written Procedure – An Approved procedure written in a format indicated in these rules specifying the Plant/LV Apparatus on which work or testing can take place, without Danger, by an Authorised Technician following the precautions stated to achieve Safety from The System.

Authorised Technician – see Persons.

Authorising Engineer – see Persons.

D5 Caution Notice – A notice in Approved form conveying a warning against interference.

Competent Technician – see Persons.

D6 Danger – A risk to health, or of bodily injury.

D7 Danger Notice – A notice in Approved form reading ‘Danger’.

D8 Dead – Not electrically ‘live’ or ‘charged’.

D9 Exception – Is a limitation or restriction affecting the safe operational condition of the Plant and/or LV Apparatus that would be a Danger to persons or integrity of the wind turbine.

D10 General Safety – The provision of safe access to and from the place of work, a safe place of work, safe methods of work and the use of correct work equipment and personal protective equipment.

D11 High Voltage (HV) – A voltage exceeding 1000 volts alternating current or 1500 volts direct current.

Immediate Supervision – see Supervision.

D12 Isolated – Disconnected from associated Plant and/or LV Apparatus by an Isolating Device(s) in the isolating position, or by adequate physical separation or sufficient gap.

D13 Isolating Device – A device for rendering Plant and LV Apparatus Isolated.

D14 Key – see Safety Key.

D15 Live – Electrically charged.
D16 **Location** – Any place at which work or testing under the Company ‘A’ Wind Turbine Safety Rules is carried out.

D17 **Locked** – A condition of **Plant** and/or **LV Apparatus** that cannot be altered without the operation of a locking device which is of a standard acceptable to the **Authorising Engineer** in charge of the **Location**.

D18 **Low Voltage (LV)** – A voltage not exceeding 1000 volts alternating current or 1500V direct current.

D19 **Management Instruction (MI)** – A procedure for use at an individual Wind Farm **Location** or series of Wind Farm **Locations**, that documents additional elements of the Health and Safety Management systems of Company ‘A’ that are to be applied to meet specified requirements of the WTSR.

D20 **Operational Control** – Control over the operational condition of Wind Farm **Plant**/ **LV Apparatus** that forms a part of the defined Company ‘A’ Wind Turbine Safety Rules System.

  **Operational Controller** – see **Persons**.

  **Personal Supervision** – see **Supervision**.

D21 **Persons**, being one of the following:

(i) **Authorising Engineer** – A **Person** who has sufficient technical knowledge and/or experience to enable him/her to avoid **Danger** and who has been **Appointed** by an appropriate officer of Company ‘A’ to carry out duties specified in writing, including the approval of **Approved Written Procedures**.

(ii) **Authorised Technician** – A **Competent Technician**, who has sufficient technical knowledge and/or experience to enable him/her to avoid **Danger** and who has been **Appointed** by an appropriate officer of Company ‘A’ to be responsible for:

  – Enacting the process of Transfer of Control, in circumstances defined in these Safety Rules and/or Management Instructions.

  – Achieving General Safety prior to the commencement of work or testing and maintaining those conditions for the duration of the work or testing

  – Implementing and confirming safety precautions during the work or testing in compliance with Approved Written Procedures

  – Setting Working Parties to work and supervising certain associated Safety Rules procedures

  – The transfer, clearance, and cancellation of Approved Written Procedures.

(iii) **Competent Technician** – A **Person, Appointed** by Company ‘A’, who by virtue of their training, knowledge, and experience, is deemed to be competent to perform routine operation and maintenance work or testing on Wind Turbine **Plant/LV Apparatus** by following appropriate **Routine Operating Procedures** and using suitable tools/work equipment.

(iv) **Operational Controller** – A **Person** who has been **Appointed** by an appropriate officer of Company ‘A’ to be responsible for:

  – The Operational Control of Wind Farm Plant and LV Apparatus

  – Enacting the process of Transfer of Control, in circumstances defined in these Safety Rules and/or Management Instructions.

  – Giving Transfer of Control to allow work or testing under a Routine Operating Procedure

  – Controlling and co-ordinating safety activities necessary to achieve Safety from The System.
(v) **Selected Person** – A Person qualified by technical knowledge and experience and Appointed by an appropriate officer of Company ‘A’ to carry out tests and examinations and make recommendations regarding additional special precautions to be taken to safeguard persons.

**D22** **Plant** – Fixed and movable items, other than LV Apparatus, for which Company ‘A’ has a maintenance responsibility.

**D23** **Purged** – A condition of Plant and/or LV Apparatus from which any dangerous contents have been scavenged.

**D24** **Restoration of Motive Power Supplies (ROMP)** – A condition where power supplies are reinstated to allow motion or functional testing of Plant and LV Apparatus. This is intended to cater only for those situations when it is absolutely essential that such power supplies (Plant and LV Apparatus) are made available in order to facilitate completion of the work or testing.

**D25** **Routine Operating Procedure** – a written procedure, for use with the full knowledge and agreement of Company ‘A’, that defines operational work or testing, which is of a regular or routine nature, that may be carried out on Plant and/or LV Apparatus by a suitably trained Competent Technician without an Approved Written Procedure. It shall define the safety requirements whose application shall be within the capability of the Competent Technician who is to carry out the routine work or testing.

**D26** **Safety from The System** – That condition which safeguards persons working on or testing Plant and/or LV Apparatus from the Dangers that are inherent in the System.

**D27** **Safety Key** – A key unique at the Location capable of operating a lock which will cause an Isolating Device, vent, or drain to be Locked.

**Selected Person** – see Persons.

**D28** **Signature Checkpoint** – A point in an Approved Written Procedure at which an Authorised Technician signs to confirm that the actions/conditions specified at that stage in the procedure have been achieved/satisfied.

**D29** **Stored Energy** – Is energy that remains within the System where its release has the potential to cause harm which could be a Danger to persons.

**D30** **Supervision**, being one of the following:

(i) **Immediate Supervision** – Supervision by a Person who is continuously available at the Location where work or testing is in progress and who attends the work area as is necessary for the safe performance of the work or testing

(ii) **Personal Supervision** – Supervision by a Person such that the supervising Person is at all times during the course of the work or testing in the presence of the person being supervised.

**D31** **Surrender Record** – A section of an Approved Written Procedure of a format shown in these Rules used to record the progress of work or testing and transfer of an Approved Written Procedure.

**D32** **System** – Items of Plant and LV Apparatus, which are used separately or in combination in any process associated with the business of Company ‘A’.

**D33** **Transfer of Control** – The handing over of Operational Control of any specified part, (or
whole), of a Wind Farm by an Operational Controller, currently having the responsibility for Operational Control, to either another Operational Controller or to an Authorised Technician or to a Competent Technician.

**D34 Vented** – Having an outlet open to the atmosphere, and so arranged that pressure can equalise to atmospheric pressure.

**D35 Working Party** – Persons working under the Supervision of an Authorised Technician or a Competent Technician including an Authorised Technician or a Competent Technician working alone.
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