Status of the WTSR

Renewable UK considers that the 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;
- 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 particular set of circumstances, RenewableUK strongly advise, prior to the implementation or revision of the WTSR into an organisation's own health and safety management systems (or if operated as a stand alone system) that 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 familiar not only with WTSR but also their practical application taking into account site and turbine specific arrangements and all other relevant circumstances.
.

COMPANY 'A'
WIND TURBINE SAFETY RULES

Third Edition

Operative from (DAY) (MONTH) (YEAR)

Issued by COMPANY 'A'

I acknowledge receipt of this copy:

..... (Signed)

..... (Print Name)

..... Date

COMPANY ‘A’
WIND TURBINE SAFETY RULES

Third Edition

Operative from (DAY) (MONTH) (YEAR)

Issued by COMPANY ‘A’

Issued to:

..... (Signed)

..... (Print Name)

..... Date

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.

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 on the grounds 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.

COMPANY 'A' WIND TURBINE SAFETY RULES

CONTENTS

POLICY, PHILOSOPHY AND PRINCIPLES OF THE WIND TURBINE SAFETY RULES

1. POLICY

1.1 The Health and Safety at Work etc. Act 1974, states:

It shall be the duty of every employer to ensure, so far as is reasonably practicable, the health, safety and welfare at work of all his 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".

The COMPANY 'A' Health and Safety Policy, prepared and issued under Section 2(3) of the Health and Safety at Work etc. Act 1974, makes specific reference as follows:

COMPANY 'A' is committed to providing a clear and effective health and safety management system. In order to ensure the effective management of health and safety within COMPANY 'A', clear minimum health and safety management standards will be established and achieved. To facilitate the delivery of these minimum standards, processes and procedures will be developed and implemented. These Wind Turbine Safety Rules form a part of that health and safety management system.

All employees are responsible for:

- Co-operating with management and complying with their 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' are 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.

NOTE: *The wording of the "POLICY" Section above is offered as an example. Each organisation should produce their own wording to reflect their individual Company Health and Safety Policy and satisfy their legal obligations.*

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 <u>not</u> 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 & mechanical Safety Rules or their approved equivalent.

2.5 There are some key criteria relating to wind turbines & 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 whilst 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 carry out specified roles. 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, 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 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, but 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;

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.

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

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) and finally 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 Approved Written 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.

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

2.14 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 & 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 distinctively 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.

GENERAL PROVISIONS

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 maintaining at all times **General Safety** at and in the vicinity of the place of work. Before work or testing commences, it is the personal responsibility of the appropriate **Authorised Technician** or **Competent Technician** to satisfy him/herself that safety precautions are taken to establish **General Safety** at and in the vicinity of the work place. Subsequent to the commencement of work or testing, the **Authorised Technician** or **Competent Technician** in charge of the work or testing shall continue, to maintain conditions that ensure **General Safety**. This **Authorised Technician** or **Competent Technician** shall also ensure that conditions of other work areas are not adversely affected by the activities for which he/she is responsible. The discharging of responsibility for **General Safety** will be achieved as part of the normal pattern of management delegation and control by ensuring that all activities are in accordance with appropriate instructions and guidance.

2. ADDITIONAL SAFETY RULES AND PROCEDURES

In addition to the Wind Turbine Safety Rules, other associated Rules & procedures issued by Company 'A', (e.g. **Management Instructions**, Electrical & 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**.

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. OBJECTIONS ON SAFETY GROUNDS

Any **Person** receiving instructions in the application of these Rules shall report to the **Person** issuing those instructions any objections on safety grounds 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 & 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.

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 on 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** 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 to always 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 The requirements of 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 A3.7 for **Live** work are fully justified.

A3.9 When work or testing is to be carried out and it is not reasonably 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 will be 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 3.7.

A3.10 Where work or testing is to be carried out on **LV Apparatus** which is part of **High Voltage (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 must be provided with fused protection to safeguard persons from **Danger**.

A3.12 When work or testing is to be carried out on **Isolated LV Apparatus**:

(i) **LV** isolation should 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 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 Transfer process 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 from the hands and wrists. The considerations of A3.13 are relevant to the selection of Personal Protective Equipment. In addition consideration should be given to the **Authorised Technician** being accompanied by another **Authorised Technician** if his 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.

(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 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 clause 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, and eye protection, faceshields, 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 as 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 whilst 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. Where practicable, all such isolations shall 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** whilst 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** whilst 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, associated 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 **Signature Checkpoint**, 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 **Transfer Record**. The purpose of the **Transfer 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 **Transfer 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 **Transfer 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, confirm and initial 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 **Transfer Record** and the intended recipient shall then sign Part 2. Where a face-to-face transfer is not reasonably practicable the **Authorised Technician** signing Part 2 of the **Transfer Record** shall personally review all of the safety precautions, confirm and initial 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** against an appropriate **Signature Checkpoint**. 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.

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 with consent 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**.

B5 EXAMPLE OF AN APPROVED WRITTEN PROCEDURE PRO-FORMA

COMPANY 'A'	**WIND TURBINE SAFETY RULES** **APPROVED WRITTEN PROCEDURE**	AWP No. ……..

1.0 Work Details:

Step	Detail	
1.1	Wind Farm Location:	WTG No.
1.2	Plant / Apparatus Identification:	
1.3	Work / Testing To Be Done:	
1.4	Associated Documents:	
1.5	Date Of Work:	

2.0 Transfer Of Control (Release):

Step	Detail		
2.1	Time:	Operational Controller	Print Name:
2.2	Authorised Technician		Print Name:

3.0 Establish Safety Precautions:

Step	Operation						
3.1	Establish Local Control of the Wind Turbine						
3.2	Establish General Safety						
3.?							
3.?	POI Application:						
3.?	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: …….						
3.?							
3.?							
3.?	Restoration of Motive Power Supplies: ***** The following motive power supplies may be restored: …… For the following essential work / testing: ……						
	Remove						
	Re-apply						
3.?							
3.?	End of Work / Testing						

3.?	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:

Step	Operation
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:

5.0 Transfer Of Control (Return):

Step	Detail
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 Transfer Record:

Part 1			Part 2	
Authorised Technician surrendering this AWP	Time / Date	Comments: Indicate the point in the work / testing programme reached	Authorised Technician receiving this AWP	Time / Date

***** Delete this Step if Not Applicable
****** Record N/A or NIL if Not Applicable

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 be concerned in 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 & the names of all other persons in the **Working Party**, the reason for the visit and the approximate duration of the 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 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; that all associated documents, **Keys** and other items are accounted for and then completing Part 1 of the **Transfer 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; that all associated documents, **Keys** and other items are accounted for and then completing Part 1 of the **Transfer 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 **Transfer Record**;

(iv) when resuming work or testing under an **Approved Written Procedure** as a new recipient completing Part 2 of the **Transfer Record**. When a face-to-face transfer has not occurred, personally reviewing all of the safety precautions, confirming and initialling 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, 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 whilst 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 exceptions noted in the clearance section of the **Approved Written Procedure**.

C2.10 When cancelling an **Approved Written Procedure**:

(i) satisfying himself 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 himself 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 must 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 on the **Routine Operating Procedure**.

C4.2 Prior to undertaking any work or testing under a **Routine Operating Procedure** the **Competent Technician** shall obtain the consent of 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** will give their name, the names of all other persons in attendance, the reason for the visit and the approximate duration of the 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 consent from the **Operational Controller** that the agreed operational work or testing be allowed to continue. This consent 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 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 of 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 giving consent 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 consent 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 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 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 **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.

D9 **High Voltage (HV)** - A voltage exceeding 1000 volts alternating current or 1500 volts direct current.

Immediate Supervision - see **Supervision**.

D10 **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.

D11 **Isolating Device** - A device for rendering **Plant** and **LV Apparatus Isolated**.

D12 **Key** - see **Safety Key**.

D13 **Live** - Electrically charged.

D14 **Location** - Any place at which work or testing under the Company 'A' Wind Turbine Safety Rules is carried out.

D15 **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**.

D16 **Low Voltage (LV)** - A voltage not exceeding 1000 volts alternating current or 1500V direct current.

D17 **Management Instruction** (**MI**) – A procedure for use at an individual Wind Farm **Location** or series of Wind Farm **Locations**, that documents the Health & Safety Management Systems of Company 'A' that are to be applied to meet specified requirements.

D18 **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**.

D19 **Persons**, being one of the following:

(i) **Authorising Engineer** - A **Person** who has sufficient technical knowledge and/or experience to enable him 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 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 & 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 consent 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.

D20 **Plant** - Fixed and movable items, other than **LV Apparatus**, for which Company ‘A’ has a maintenance responsibility.

D21 **Purged** - A condition of **Plant** and/or **LV Apparatus** from which any dangerous contents have been scavenged.

D22 **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.

D23 **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**.

D24 **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**.

D25 **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.

D26 **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.

D27 **Switching** - The operation of circuit breakers, disconnectors / isolators or other methods of making or breaking an electrical circuit, and/or the application and removal of fuses.

D28 **System** - Items of **Plant** and **LV Apparatus,** which are used separately or in combination in any process associated with the business of Company ‘A’.

D29 **Transfer Of Control** - The handing over of **Operational Control** of any specified part, (or whole), of a Wind Farm by a **Operational Controller**, currently having the responsibility for **Operational Control**, to either another **Operational Controller** or to an **Authorised Technician**.

D30 **Transfer Record** - A section of an **Approved Written Procedure** of a format shown in these Rules used to record the progress of work or testing & transfer of an **Approved Written Procedure**.

D31 **Vented** - Having an outlet open to the atmosphere, and so arranged that pressure can equalise to atmospheric pressure.

D32 **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.