SafetyOn Onshore Emergency Response

Good practice guidelines for onshore wind energy developments

SafetyOn

renewableUK

In partnership with

energy institute

SAFETYON ONSHORE EMERGENCY RESPONSE

GOOD PRACTICE GUIDELINES FOR ONSHORE WIND ENERGY DEVELOPMENTS

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The Energy Institute (EI) is the chartered professional membership body for the energy industry, supporting over 20 000 individuals working in or studying energy and 250 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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It also offers its own Chartered Energy Engineer, Chartered Petroleum Engineer and Chartered Energy Manager titles.

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DISCLAIMER

The contents of these guidelines are intended for information and general guidance only, do not constitute advice, are not exhaustive, and do not indicate any specific course of action. Detailed professional advice should be obtained before taking, or refraining from, action in relation to any of the contents of this guide or the relevance or applicability of the information herein.

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1 INTRODUCTION AND SCOPE

1.1 SCOPE

These guidelines set out an approach that all Duty Holders are encouraged to apply, taking account of the specific risk profile of their projects, and their legal and contractual obligations.

In the context of this document, the term Duty Holder is used to identify the organisation with primary responsibility and control of the project and site.

This document does not recommend who the Duty Holder should be, but recommends that a single Duty Holder is identified and recognised by all participants.

While acknowledging that the Duty Holder under these guidelines should take the lead responsibility for developing the relevant emergency response plans (ERPs) and support arrangements at a project level, each individual employer, contractor or subcontractor will continue to have their own responsibilities under applicable national requirements.

It is anticipated that the Duty Holder may be different for the different phases of the life cycle of the project, i.e:

– development;
– construction;
– operations, and
– decommissioning.

1.2 INTRODUCTION

Although the renewable industry shares a number of characteristics with other industries, the remoteness of location and the demands of an elevated and constrained workplace has led the industry to conclude that it requires its own guidance on emergency procedures.

This document has been developed through industry collaboration and is built upon good practice from other comparable industries. This document aims to provide a process that, if followed, should allow the Duty Holder to develop site-specific plans and procedures to mitigate the consequence of incidents and help protect casualties until they can be delivered to an ultimate place of safety.

It is important to emphasise that the emergency response planning document adopts a risk-based approach to managing emergency situations. It is the responsibility of the Duty Holder to proportionally assess the risks associated with their specific wind farm and, by doing so, control and mitigate them.

2 KEY PRINCIPLES

2.1 KEY PRINCIPLES THAT SHOULD APPLY

When developing an ERP, consideration should be given to the following key principles:

- defined asset;
- roles and responsibilities;
- response capability;
- escalation;
- relevant and current incident response;
- exercise, and
- competence and training.

3 EMERGENCY RESPONSE PROCEDURES

3.1 INTRODUCTION

In order to develop ERPs, the Duty Holder should have systematically identified possible scenarios that could occur within a site and then put in place appropriate measures to protect, control and respond to such scenarios.

The Duty Holder should also assess the likely impact that an incident from third-party activities or businesses could have on the site, and what impact an incident on the site could have on the neighbouring installations.

3.2 SITE-SPECIFIC ERP

When developing a site-specific ERP, consideration should be given to the following suggested ERP layout:

- wind farm emergency contact and quick reference information;
- emergency services contact and quick reference information;
- wind farm layout chart;
- site geographical coordinates;
- rescue/escape equipment, first aid equipment, evacuation and escape procedures – structure dependent e.g. evacuation and rescue procedures from the original equipment manufacturer (OEM);
- role and responsibilities of the Duty Holder in an emergency, including:
  - escalation process;
  - liaison arrangements between Duty Holder and emergency services – to include rendezvous location, access, escort, search and rescue (SAR);
  - methods of communication, including telephone, radio, personal beacons, vehicle trackers, and
  - emergency response – equipment, emergency communication and communication protocols.
- emergency shutdown procedures and processes, and
- site-specific hazards; e.g. chemicals, weather conditions.

3.3 CONTEXT OF THE WIND FARM

3.3.1 Ownership and Duty Holders

The Duty Holder is responsible for the health and safety of all personnel working on a designated site.

For an onshore wind farm, the emergency plan is best made the responsibility of one organisation. The Duty Holder is normally the owner of the site, or during construction, the principal contractor. However, in some situations the Duty Holder may be the operator/ maintainer of the facility. This is likely to be the case for individual or small turbine collections located independently from maintenance/operator facilities.

3.3.2 Wind farms geographical boundaries

The Duty Holder should clearly identify the scope and boundaries to which the ERP applies, and record on a master map.

Logistic routes to and from the work area(s) need to be identified and whether they are in, or out, of scope of the ERPs.

Areas that are accessible by non-wind farm personnel/traffic need to be identified. Although the Duty Holder is not expected to resource an emergency response for such activity, a Duty Holder is expected to respond should an incident occur within their area of responsibility.

Neighbouring capability that could respond to an incident should be identified and recorded on the master map/plan.

For construction work, the boundary will be considered to be the Construction (Design and Management) Regulations 2015 (CDM) boundary.

3.3.3 Onshore wind farm assets

The Duty Holder should provide diagrams, tables, site drawings and outline structural plans of all assets that would assist in delivering an emergency response.

Maps should provide clear guidance of where assets are located on a site, including access and egress routes from known reporting points, e.g. wind farm main gate.

Where there is insufficient detail in topographical maps, then site drawings should be provided. These should identify assets, together with their numerical reference and geographical location (latitude, longitude, and grid reference). Photographs should be provided if this aids clarity.

Structural plans should be provided for all energy assets that identify normal and emergency egress procedures, including areas to be avoided, place of safety and escape routes and refuge areas if required.

Consideration should be given to ensuring safe access and egress for emergency services to the location of the emergency event. This should include provision for escorting the emergency services from the site access to the incident location.

The Duty Holder should publish the site ERP which should be available to all site personnel. For an example ERP, see Annex A.

3.4 NEEDS ASSESSMENT

This section provides specific guidance to determine an adequate level of emergency plans, including clarification of the response time and capability of local emergency services.

The support that can be provided by the emergency services to sites varies widely and may be limited in terms of its capability, thus it is critical to determine the local emergency services' availability and capacity in order that local plans are aligned.

3.4.1 Identification of local emergency services capability

Local emergency services should be consulted when determining emergency plans, given the differences in national, regional and local agencies' capability.

All local emergency services for the site should be identified, for example:

– police;
– fire brigade (full-time or 'retained');
– ambulance;
– helicopters – including SAR, coastguard and air ambulance as appropriate for the site, and
– local volunteer teams, such as mountain rescue teams.

This close collaboration with local emergency services identified in this section, should include as a minimum:

– Identify what access/site information emergency services require to identify the site location. This may include post code, map grid references, longitude and latitude and 'what three words' references. Consideration should be given to providing the location of the site access roads, site welfare facilities and the individual wind turbines.
– Establish the expected response time to the site and the level of response capability, including vehicles (e.g. 4x4) and specialist responders (e.g. hazardous area response teams (HART) if available).
– Share site ERPs (once established) so the local responders are familiar with the site and procedures, along with any site-specific risks.
– Engage with the local emergency services in conducting regular emergency drills, if local resources permit.

3.4.2 First aid needs assessment

Reliance on emergency services should not be considered as a primary mitigation.

First aid is the assistance given to any person suffering a sudden illness or injury, with care provided to preserve life, prevent the condition from worsening and to promote recovery. It includes initial intervention in a serious condition prior to professional medical help being available.

The first aid needs assessment should be risk-based and include consideration of the following:

– persons at risk;
– work activities undertaken;
– potential/possible injuries that could credibly be incurred at a wind farm;
– emergency services response – scope and timing;
– equipment and its location;
– training;
– current and additional mitigation measures;
– any unique characteristics of the site, and
– adverse weather.

Plans should be put in place to sustain the casualty, on scene and during the course of an evacuation, to a place where the expertise of the emergency services can take control.

Additional training and associated equipment may be required depending on the expected response time of the emergency services and hand-over point.

3.4.3 Environmental response

An environmental response plan, together with containment materials, should be available to respond to possible incidents that could harm the environment e.g. spillage, fire.

3.5 INCIDENT MANAGEMENT

The Duty Holder is responsible for establishing clear management arrangements. It is recommended that Duty Holders establish the three-tiered approach laid out in this section.

Level 1

The immediate activity undertaken by the work team.

Level 2

Support that can be provided to those undertaking operational activity and additional company support.

Level 3

For major incidents and where support from the emergency services/external agencies may be required.

The level of response will be dependent upon a number of factors and subject to continual assessment of the incident and effectiveness of the response.

The Duty Holder should have arrangements in place, described in the ERP, to ensure the following requirements can be met.

3.5.1 Level 1

The emergency arrangements should ensure that there are sufficient competent persons available when the alarm is raised to:

- assess the incident and respond in accordance with organisational policies, procedures and systems of work;
- determine if the incident should be reported to the emergency services;
- report the incident to appointed person;
- develop, communicate and control the specific plan of response;
- continually evaluate the effectiveness of the response, changing circumstances, etc.;
- record or log decisions and actions for future review and investigation, and
- consider the escalation to a Level 2/3 response.

3.5.2 Level 2

Where an incident is beyond the capabilities of the immediate responders at Level 1, a Level 2 response should be initiated, which will:

– review the effectiveness of the response, ensuring the additional resources are made available and provided with all required information;
– continually assess the need to escalate to a Level 3 response, and
– record or log decisions and actions for future review and investigation.

3.5.3 Level 3

If a Level 3 response is required, then a single point of contact should be identified to liaise with the emergency services to:

– provide resources and/or determine limitations;
– ensure there are clear lines of communication internally and with the emergency services;
– consider availability of resources for out-of-hours response and relief staff;
– where appropriate, develop a media response plan ensuring consistency with emergency services and regulatory requirements, and
– consider securing the incident scene record or log decisions and actions for future review and investigation.

A key principle is that it is better to overreact initially rather than under-resource the response. Assets may always be stood down if not required. Trying to regain control once time is lost is very difficult, if not impossible.

3.6 CLARITY OF RESPONSIBILITY

The Duty Holder's area of responsibility should be clearly detailed within the site's emergency plan by geographical coordinates. Where non-routine activities are temporarily introduced into a site, an interface document to the site emergency plan should be raised detailing the command and control arrangements, with transfer of responsibility specified by time or geographical coordinates. The Duty Holder is responsible for establishing clear communication within onshore wind farm work locations.

3.7 PLANNING

3.7.1 Incident communication

The Duty Holder should ensure that there is effective communication between the work locations, logistic routes and any control centres/emergency call centres. Plans should include secondary communication methods and requirements to test communication on a regular basis.

The decision on whether to escalate an incident to a higher response level will be dependent on a number of factors; **there should never be reluctance to escalate.**

A communication protocol is to be established; attention to who and how the emergency services should be alerted and what information is to be communicated. For example, using the recognised format METHANE:

M – whether major incident has been declared
E – exact location
T – type of incident
H – hazard present or suspected
A – access, routes that are safe to use
N – number, type, severity of casualties
E – emergency services present and those required

The level of response will be dictated by the appropriate emergency service.

3.8 POST-INCIDENT ACTIONS

Consideration should be given to ensuring emergency contacts of the injured person can be informed.

In the event of a fatality, the informing of next of kin is a specialised task that requires sensitivity, and will be undertaken by the emergency services.

3.8.1 Site security and maintenance of evidence

Following an incident, the priority is to maintain safety. This may require the movement of items, the disconnection of services or the establishment of a cordon; once this is achieved then evidence should be preserved, either physically or by visual recording where weather could destroy evidence.

3.8.2 Statutory reporting

Where appropriate the relevant authority shall be informed by the Duty Holder or employer as required.[1]

3.9 MEDIA HANDLING

Good public communication is vital to the successful handling of any incident and should be incorporated in all contingency planning. Media press releases should be agreed by all stakeholders. Particular attention should be paid to ensuring that injury details are not released before next of kin are informed.

The inadvertent release of sensitive information can compromise emergency response, cause unwarranted distress and prejudice subsequent investigations.

1 How to make a Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) report https://www.hse.gov.uk/riddor/report.htm

4 TESTING AND POST-INCIDENT REVIEW

4.1 EXERCISE PLANNING

Scenario-based training exercises may concentrate on individual components of incident response. Examples could include:

– escape from restricted work areas;
– rescue from height;
– rescue from fires (e.g turbine, wildfire);
– vehicle incident;
– loss of contact, lone working/remote working, or
– lifting operation.

These should be conducted regularly so that all those expected to partake in an incident know and practise their roles.

Level 1

– limited level exercise;
– specific scenario;
– work party;
– no external communications;
– minimal impact, and
– short duration.

Level 2

– integrated site;
– full site response;
– multiple parties;
– test coordination;
– communication, and
– reduced impact on operations.

Level 3

– external parties' involvement;
– high impact downtime;
– extensive planning requirement;
– comprehensive lessons learned, and
– third-party assessment.

Team-based exercises should be conducted to develop leadership, communication and familiarity with site-specific ERPs. Such exercises are likely to impact on routine operations and may need to be built into the site programme. The importance of these exercises cannot be overemphasised, and management must be prepared to schedule and support such activity. As these exercises will affect the operational programme, they may need to be prepared

weeks in advance. Training personnel should assist in the development and delivery, and special safety measures may be required above and beyond normal operating procedures. Such measures should be identified by an exercise risk assessment e.g. double connection to practise an emergency descent.

Joint exercises with external emergency responders provide an important opportunity for the emergency responders to familiarise themselves with wind farm operations, equipment and procedures. Again, such an exercise will impact on operations; however, the benefit of such interaction will be found should a real incident occur. Emergency services are on constant readiness and therefore exercises may be called off at short notice. Planning is likely to require pre-meetings and detailed risk analysis, together with an agreed and scripted scenario programme. A moderate exercise involving emergency services and air ambulance may take over three months to organise.

The Duty Holder should determine the frequency and scope of exercises to ensure that the plan remains up-to-date and effective.

Exercises may require assets to being taken out of service for the duration of the exercise.

Types of exercise may include tabletop, live with internal support only, or live with external support.

4.2 POST-EXERCISE REVIEW

Lessons should be identified and recorded and, where appropriate, emergency plans updated.

Duty Holders should ensure that casualties can, if necessary and suitable, be recovered from work locations to a temporary place of treatment to await further assistance or transfer.

Lessons that could apply across the industry should be shared through SafetyOn.

Following any incident or emergency response exercise, there should be a structured debrief. The objective is to capture not only what went well, but also to learn from experience.

A debrief involving all stakeholders, structured around the ERP, should look at all aspects of the live/exercise incident.

Priorities for change should be identified and an implementation plan created with objectives and deadlines for completion.

Where the Duty Holder considers that the lessons learned may be of wider benefit to the industry, these can be communicated through SafetyOn.

4.3 PERIODIC REVIEW

Emergency plans should also be reviewed periodically, e.g. every three months, or following a significant change.

As part of the ERP review, the important contact information, such as phone numbers, should be regularly tested and verified, particularly in construction projects where companies and people in the projects can change more frequently.

5 TRAINING AND COMPETENCE

All personnel on site are to be suitably trained to correctly respond to emergency situations; specific training requirements shall be identified within the plan.

ANNEX A
EXAMPLE ERP

DOCUMENT HISTORY

Add version control to ensure most up-to-date document is in place and being used.

INTRODUCTION

– The purpose of this emergency response plan is to….
– This emergency response plan shall be applied at the following locations:
– A copy of this document is available at the following locations:

SITE INFORMATION

Add appropriate site information including full address of site entrance/grid reference/ long – lat coordinates and map of site access roads.

CONTACTS

Site contacts

Description	Contact	Telephone 1	Telephone 2
Control building			
Control building			
Client operations manager			
OEM			
24-hour control room			
Site operations manager			
Press liaison officer			
Distribution network operator (DNO)			
Site HV operator			
Emergency spill response			
Vehicle recovery			

Note: this table should be periodically reviewed to ensure contact details remain accurate.

Site access

Add in emergency services procedure (Operations sites) document or site maps/layout etc. (managed sites)

Directions to hospital/medical facilities

Add route map from site entrance to local accident and emergency (A&E)/medical facility

Wind farm key grid references

Location	Grid reference	Easting	Northing
Site entrance			
Control building and substation			
Helicopter landing zone			
Substation/muster Point			
Met mast			

Turbines

Location	Grid reference	Easting	Northing
Turbine WTG-01			
Turbine WTG-02			
Turbine WTG-03			
Turbine WTG-04			
Turbine WTG-05			

Hazardous substances present on-site

Turbines

Location	Substance
Tower – cabinets	
Nacelle – hydraulic system	
Nacelle – hydraulic system accumulators	
Nacelle – main gearbox	
Nacelle – yaw drives	
Nacelle – generator	
Hub – pitch drives	
Nacelle/hub – bearings	

Control building/substation

Location	Substance
Substation compound – auxiliary transformer	
33kV switch room – switchgear	
Substation compound – capacitor banks A & B	
Substation building – air conditioning units	
Substation building – batteries	
Substation compound – standby generator	
Substation compound – underground septic tank	
Substation compound – underground interceptor tank	

Control building/substation

Location	Substance
Substation building – auxiliary transformer	
33kV switch room – switchgear	
Substation building – batteries	
Substation building – standby generator	
Substation compound – underground septic tank	

Local emergency services contacts

Description	Contact	Telephone 1	Telephone 2
Police			
Fire and rescue			
Medical A&E (nearest)			
Medical A&E			
SAR			
Environmental response			

INCIDENT EMERGENCY CHECKLISTS

Fire – no personnel in turbine or building

Immediate reporting checklist

Contact	Telephone number
Local fire & rescue	
OEM	
Client	
Control centre	
DNO	

Actions to be completed

1	**Only attempt to extinguish any fire if safe to do so – ensure that the escape route is not impeded at any point**	
2	Confirm location/size of fire and potential for spread to other structures	
3	Raise the alarm with the fire and rescue service – arrange to meet at the site entrance	
4	Evacuate adjacent buildings/structures if necessary, by raising the alarm and retreat a safe distance	
5	Account for all people on site	
6	Inform the control so that the necessary electrical isolations can be implemented	
7	Meet the fire and rescue service at the site entrance (or nominate a colleague) and communicate relevant details to fire and rescue service and direct them to the fire	

Injury – employee or member of public

Immediate reporting checklist

Contact	Telephone number
Local fire & rescue	
OEM	
Client	
Control centre	
DNO	

Actions to be completed

1	Ensure that no one is in danger	
2	If trained to do so, render first aid making use of the kit available at or near the location; alternatively, contact a suitably trained member of staff for assistance	
3	Escort the casualty to a safe area, e.g. the control building, ensuring they are accompanied throughout, and arrange for them to be conveyed to the nearest hospital should further medical treatment be required – if there is any doubt as to the seriousness of an injury, medical treatment must always be sought	
4	Contact the control centre and report the accident	

Injury (requiring emergency services) – fatality (employee or member of public)

Immediate reporting checklist

Contact	Telephone number
Local fire & rescue	
OEM	
Client	
Control centre	
DNO	

Actions to be completed

1	Ensure that no one is in danger	
2	Notify the emergency services immediately, followed by Natural Power Control Centre	
3	Nominate a colleague to meet the emergency services at the site entrance and escort them to incident location	
4	If it is safe to do so, make the plant safe and isolate the equipment from all sources of energy supply	
5	Secure the scene of the incident by establishing an exclusion zone	
7	Remain at the scene until the necessary support is in attendance, then transfer control of the incident to the emergency services that are in attendance	

Environmental spill

Immediate reporting checklist

Contact	Telephone number
Local fire & rescue	
Spill response contractor	
OEM	
Client	
Control centre	
DNO	

Actions to be completed

1	Ensure that no one is in danger	
2	Notify the emergency services/spill response contractor immediately, followed by control centre if applicable	
3	Nominate a colleague to meet the emergency services/spill response at the site entrance and escort them to site	
4	If it is safe to do so, make the plant safe and isolate the equipment from all sources of energy supply	
5	Secure the scene of the incident by establishing an exclusion zone	
6	Remain at the scene until the necessary support is in attendance, then transfer control of the incident to the emergency services that are in attendance	

ANNEX B
ORGANISATIONS, STATUTORY AUTHORITIES AND LEGISLATIVE REQUIREMENTS

B.1 ORGANISATIONS AND STAKEHOLDERS

B.1.1 Regulators and investigation bodies

- Air Accident Investigation Branch (AAIB)
  www.gov.uk/government/organisations/air-accidents-investigation-branch
- Civil Aviation Authority (CAA)
  www.caa.co.uk/
- Environment Agency (EA)
  www.gov.uk/government/organisations/environment-agency
- Health & Safety Executive (HSE)
  www.hse.gov.uk/
- Scottish Environment Protection Agency (SEPA)
  www.sepa.org.uk/

B.1.2 Emergency planning/response

- Chief Fire Officers Association (CFOA)
  www.cfoa.org.uk/
- Emergency Preparedness Offshore Liaison (EPOL)
  www.epolgroup.co.uk/
- Bristow Search & Rescue
  http://bristowgroup.com/uk-sar/
- Cabinet Office (Resilience)
  www.gov.uk/guidance/resilience-in-society-infrastructure-communities-and-businesses
- Local Resilience Forums
  www.gov.uk/guidance/local-resilience-forums-contact-details
- Joint Emergency Services Interoperability Programme (JESIP)
  www.jesip.org.uk

B.1.3 Government

- Department for Business Innovation & Skills (BIS)
  www.gov.uk/government/organisations/department-for-business-innovation-skills
- Department for Transport (DfT)
  www.gov.uk/government/organisations/department-for-transport
- Department of Enterprise Trade & Investment (Northern Ireland)
  www.detini.gov.uk/
- Department for Energy & Climate Change (DECC)
  www.gov.uk/government/organisations/department-of-energy-climate-change

- Scottish Enterprise
  www.scottish-enterprise.com/
- Scottish Government
  www.gov.scot/
- Welsh Assembly Government
  http://gov.wales/?skip=1&lang=en

B.1.4 Trade associations

- RenewableUK (RUK)
  www.renewableuk.com

B.1.5 Other stakeholders

- SafetyOn
  www.safetyon.com
- Global Wind Organisation (GWO)
  www.globalwindsafety.org

B.2 STATUTORY AUTHORITIES

Before commencing emergency response planning, it is advisable to consult national guidance. The following organisations are likely to have a direct impact on wind farm layout and emergency response:

- Health and Safety Executive (HSE)
- Civil Aviation Authority (CAA)
- Police
- Fire and Rescue Authorities (FRAs)

B.3 LEGISLATIVE REQUIREMENTS

B.3.1 Key legislation

Health and Safety at Work etc Act 1974

The Work at Height Regulations 2005

The Construction (Design and Management) Regulations 2015

The Health and Safety (First-Aid) Regulations 1981

The Confined Spaces Regulations 1997

Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)

B.3.2 The principal Duty Holder

For an onshore wind farm, the emergency plan is best made the responsibility of one organisation – known for the purposes of this document as the Duty Holder – which should in most cases be the operator or owner during the operation, or during construction the principal contractor. Compliance with this guidance will therefore aid principal Duty Holders to fulfil their duties as employers under general health and safety legislation. This does not mean that other individual employers who may be involved in activities in an onshore wind farm are absolved from meeting their duties under the HSW Act and MHSWR reg 11 will require those employers to cooperate and coordinate with the principal Duty Holder.

The role of the operational controller is to be the point of contact with external emergency services. Contact details should be provided to external emergency services. There should be sufficient number of persons competent to carry out this role, taking into account shift patterns, leave, etc.

B.3.3 Determining the appropriate measures – risk assessment

The emergency response plan should be based on a suitable and sufficient risk assessment as required by MHSWR regulation 3.

For these risk assessments to be suitable and sufficient for emergency planning in onshore wind farms, they should determine the appropriate measures required by regulation 8 of the MHSWR establishing the procedures to deal with serious and imminent danger and for danger areas. Specifically:

8(1) Every employer shall:

- Establish, and where necessary give effect to, appropriate procedures to be followed in the event of serious and imminent danger to persons at work in his undertaking.
- Nominate a sufficient number of competent persons to implement those procedures in so far as they relate to the evacuation from premises of persons at work in his undertaking.
- Ensure that none of his employees has access to any area occupied by him to which it is necessary to restrict access on grounds of health and safety, unless the employee concerned has received adequate health and safety instruction.

To determine the appropriate arrangements a risk assessment should:

- Identify the foreseeable events which could give rise to:
  - a major accident, or
  - the need for evacuation, escape or rescue to avoid or minimise a major accident.
- Evaluate the likelihood and consequences of such events;
- Establish appropriate standards of performance to be attained by anything provided, by measures for:
  - ensuring effective evacuation, escape, recovery and rescue to avoid or minimise a major accident, and
- Protecting persons from a major accident.
- Select appropriate preventive and protective measures.

That part of the assessment dealing with evacuation, escape and rescue should determine the following:

1. Organisational structure (including the formal command and control structure) and arrangements to effectively manage the emergency which might lead to evacuation, escape and rescue.
2. Procedures for the evacuation, including type, capacity and location.
3. Performance requirements for the rescue and recovery equipment, including their function, capacity and availability.
4. Equipment requirements and specifications including types, numbers and locations of personal survival and escape equipment.
5. Environmental factors and weather conditions that may limit the capacity to carry out effective evacuation, escape and rescue.
6. Arrangements for providing and receiving mutual support from, and/or to, adjoining locations and/or facilities.

Setting performance standards, e.g. time to evacuate to a place of safety for measures is a crucial aspect of the assessment process. Performance standards should relate to the management arrangements, items of equipment, procedures, etc. which they describe. They may be described in terms of functionality, survivability, reliability and availability.

B.3.4 Establishing suitable arrangements

As per MHSWR regs 8(2) and 8(3). In ensuring the statutory requirements specified here are met, the effective organisational arrangements should be recorded in the ERP and should include:

- The onshore arrangements for the effective management of the response, at all times and through all the stages, to the emergency, including suitable contingency arrangements.
- A command and control structure to manage the emergency and evacuation arrangements, which could include:
  - One person given responsibility for taking overall charge.
  - Roles and responsibilities of those in the command structure being clearly defined and understood.
  - Contingency arrangements, in case the person in charge, or those with emergency duties, are unable to carry out and/or continue their role.
  - A sufficient number of persons competent to undertake emergency duties and operate relevant equipment.
  - Lists of persons able to carry out the required functions described.
  - Arrangements to assure the Duty Holder that persons carrying out any prescribed function are competent to do so.
  - Appropriate information, instruction and training on what to do in the event of an emergency should be given to all employees, contractors and visitors.

The procedures should, after proper consultation with those likely to be involved, be recorded in the ERP. It should include:

- procedures by way of emergency response to be followed in all different foreseeable incidents, and
- any limitations (due to environment or otherwise) on procedures and contingencies to follow thereafter.

The plan should be exercised and tested with sufficient frequency and depth so that it can be relied upon to work effectively in an emergency, taking into account the range of different people who may be involved in implementing the plan. A programme of test exercises should be agreed, operated, monitored and reviewed, in close consultation with all other relevant parties. In the light of exercises and tests conducted, and any practical experience gained from operating the plan in a real emergency, any remedial action identified and taken should be recorded for the purpose of reviewing and updating the plan. The arrangements to test the plan should be produced and include, but not be limited to, the following elements:

– an initial table top exercise, in consultation with other relevant parties;
– a periodical programme of major exercises that test a significant part of the emergency arrangements, including external agencies, are carried out when safe to do so;
– regular exercises, drills and updates involving personnel involved in the rescue of personnel. All persons with designated roles should be involved at least on an annual basis, and
– a review, and, where appropriate, revision of the emergency arrangements, involving other relevant parties.

Those who have command responsibilities, or who have been allocated emergency duties, must be competent. Duty Holders should have a system to assure themselves of the competence of the command team to manage an emergency and of those who have specific duties in an emergency.

Competence can be gained through training, experience and knowledge, backed up by practice and refresher training.

B.3.5 Arrangements with emergency services

The emergency procedures should not be produced in isolation of the needs of other parties involved in dealing with an emergency situation and as per MHSWR reg 9.

The principal Duty Holder should consult and take into account the views and requirements of those who are likely to have a role in implementing the plan. This should include relevant emergency services and specialist emergency response teams who will be able to advise on aspects of the plan dealing with evacuation, escape, recovery, and rescue. This might include other parties who provide recovery and rescue facilities, for example the fire and rescue service or police, which would be likely to have a role in various aspects of an emergency.

The relative location of an onshore wind farm to other onshore wind farms may enable benefits in responding to incidents by the provision of mutual support. This could include the sharing of resources. It is an important part of the planning process to determine what resources could be available and/or provided from or to others in dealing with incident responses. It is recommended that in these cases consideration is given to the creation of local hubs to enable mutual support.

B.3.6 Cooperation and coordination with other employers

All those other Duty Holders with a reasonably foreseeable role in the overall emergency response and recovery should be involved, as appropriate, in the preparation of the emergency plans. Cooperation is essential, and compromise may sometimes be necessary. Senior authorised representatives of the key organisations which could have a role to play in

an emergency should periodically meet as a senior emergency coordinating group, or other similar group, to develop the plan and the testing regime, and to consult other Duty Holders and emergency services.

The extent of cooperation and coordination could extend to the sharing of lessons learnt from incident responses (and exercises) with the wider industry.

B.3.7 Construction work on wind farms – emergency plans

The arrangements for dealing with emergencies should take into account the actual activity on the site and be reviewed accordingly. For example, the requirements during the construction phase of a project will be different for the routine operational and maintenance phase, and hence different emergency response plans will be required. If refurbishment work takes place that satisfies the criteria of 'construction work' as set out in CDM, an ERP will be required for that work that integrates with the site ERP, ERCoP and Integrated ERP.

– For the purpose of clarity, the CDM Regulations require suitable emergency arrangements and following this guidance should enable the Duty Holder to meet this duty.
– The production of an emergency plan does not in any way reduce employers' duty to prevent and then mitigate the consequences of accidents, which are the main priorities.
– The client has a legal responsibility to ensure that any contractor is competent to carry out the tasks required. Therefore, they should have arrangements to select suitable contractors, which should include audit monitoring and regular review of performance.

B.3.8 Incident investigation by enforcing authorities

The relevant authorities use discretion in whether to investigate incidents. When making such decisions, including the level of resource to be used, they can take the following factors into account:

– severity and scale of potential or actual harm;
– seriousness of any potential breach of the law;
– relevant enforcement or other priorities;
– practicality of achieving results, and
– wider relevance of the event, including serious public concern.

The relevant authorities, Police, HSE, AAIB have different duties for health and safety enforcement and accident investigation. There are memorandums of understandings and/or other agreements between the relevant authorities to determine the lead authority and, where overlap exists, use their best endeavours to cooperate effectively to enable and assist each other to carry out their responsibilities and functions, and to maintain effective working arrangements.

For a sudden death at work, different arrangements apply in Scotland than in England and Wales.

In Scotland, where there has been a sudden, suspicious or unexpected death, it is the responsibility of the Procurator Fiscal to investigate it, although this will usually be done (for

crimes other than health and safety ones) in the first instance by the police, who will report the result of their investigation to the Procurator Fiscal. Where the death is believed to be work-related, the police will conduct an investigation (subject to any guidance or instruction from the Procurator Fiscal) jointly with the HSE (or other enforcing agency). On the rare occasions where joint investigation would not be appropriate, there will still be effective liaison and cooperation among the investigating parties.

Further details can be found at www.hse.gov.uk/scotland/workreldeaths.pdf

For England and Wales, the arrangements are described in a protocol for the Crown Prosecution Service (CPS), Police, and HSE, which can be found at www.hse.gov.uk/pubns/wrdp1.pdf

When an incident occurs which does not, or is unlikely to, result in, a sudden death then the HSE and AAIB may be involved in conducting investigations. The HSE will be the lead authority for enforcement and investigation of occupational accidents resulting from land-based works or undertakings, including construction, operation and maintenance activities at an offshore renewable energy development. Where there is potential overlap between the relevant authorities, then the organisations undertake to use their best endeavours to cooperate effectively to enable and assist each other to carry out their responsibilities and functions, and to maintain effective working arrangements for that purpose.

The Police may also investigate other criminal activity. All cases involving an unexpected death in the workplace will be investigated either by the Coroner in England & Wales or a Fatal Accident Inquiry (FAI) if under jurisdiction of Scottish Law. Fundamentally, the role of such investigations is not to apportion blame but to determine the identity of the deceased person and then to determine how, why and where they died and what caused their death.

ANNEX C
GLOSSARY

C.1 GLOSSARY OF TERMS

Within this document these terms have the following meaning:

Contacts register	Documented list of all agreed contact points and methods of communication and, where applicable, authorisation protocols.
Duty Holder	The organisation with primary responsibility and control of the project and site.
Emergency	An emergency of a kind which requires evacuation, escape or rescue.
Emergency assistance	Mutual support or assistance provided to neighbouring sites in the event of an emergency to those affected.
Emergency response	Action to safeguard the health and safety of persons in an emergency.
Emergency response file	Document that logically explains how emergency plans have been developed.
Emergency response plan (ERP)	Communication document explaining how personnel within a renewable energy facility will respond to their own incident.
Escape	Planned method of leaving the site, building, structure, or wind turbine using a single point of failure device.
Evacuation	Planned and controlled method of leaving the site, building, structure, or wind turbine using normal access and egress routes and without relying on a single point of failure device.
First aid	The assistance given to any person suffering a sudden illness or injury, with care provided to preserve life, prevent the condition from worsening and to promote recovery. It includes initial intervention in a serious condition prior to professional medical help being available.
Medevac	Any evacuation of a person for medical reasons.
Place of refuge	Location that can provide shelter and access to appropriate welfare equipment in the event that an evacuation from site cannot be safely carried out
Place of safety	Location where medical treatment can be accessed and provided by emergency services.
Resource register	Documented list or description of all identified resources available by the parties concerned in order to provide emergency assistance.

Risk register/first aid needs assessment	Documented record of the identified risks for all affected parties where emergency assistance may be required.

Note: these terms and definitions should only be used in order to provide a consistent understanding of the scope and application to these guidelines alone. While in many cases based on accepted terms, they do not have any statutory or official status regarding their interpretation or application. Duty Holders are encouraged to also review the scope of terms used by other bodies such as HSE, JESIP etc.

C.2 ABBREVIATIONS AND ACRONYMS

AAIB	Air Accidents Investigation Branch
BIS	Department for Business Innovation & Skills
CAA	Civil Aviation Authority
CDM	Construction (Design and Management) Regulations 2015
CFOA	Chief Fire Officers Association
CPS	Crown Prosecution Service
DECC	Department for Energy and Climate Change
DfT	Department for Transport
EA	Environment Agency
EPOL	Emergency Preparedness Offshore Liaison
ERP	emergency response plan
FAI	fatal accident inquiry
FRAs	fire and rescue authorities
GWO	Global Wind Organisation
HART	hazardous area response teams
HSE	Health and Safety Executive
HV	high voltage
LOLER	Lifting Operations and Lifting Equipment Regulations 1998
MHSWR	The Management of Health and Safety at Work Regulations 1999
OEM	original equipment manufacturer
RUK	RenewableUK
SAR	search and rescue

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