

Medical Fitness to Work

Guidelines for near offshore and land based renewable energy projects

Health and Safety

April 2011

RenewableUK is the leading renewable energy trade association in the UK. Wind has been the world's fastest growing renewable energy source for the last seven years, and this trend is expected to continue with falling costs of wind energy and the urgent international need to tackle CO2 emissions to prevent climate change.

In 2004, RenewableUK expanded its mission to champion wave and tidal energy and use the Association's experience to guide these technologies along the same path to commercialisation. Our primary purpose is to promote the use of wind, wave and tidal power in and around the UK. We act as a central point for information for our membership and as a lobbying group to promote wind energy and marine renewables to government, industry, the media and the public. We research and find solutions to current issues and generally act as the forum for the UK wind, wave and tidal industry, and have an annual turnover in excess of five million pounds.

Status of this document

Health & Safety Guidelines are intended to provide information on a particular technical, legal or policy issue relevant to the core membership base of RenewableUK. Their objective is to provide industry specific advice or guidance where current information is either inadequate or incomplete. Health and safety guidelines will be subject to regular review and updating and so the latest version of the guidelines must be referred to. Attention is also drawn to the disclaimer below.

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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Foreword

Occupational health issues present one of the most important challenges for a rapidly growing industry. The aim of these guidelines is to capture and communicate a common level of understanding of the issues and practicalities relating to medical fitness assessments in the absence of any suitable reference sources to date. They are intended to assist competent health and safety, occupational health and medical practitioners make informed and risk based decisions as to nature and scope of any medical fitness assessments that may be conducted. They are not a prescriptive standard and they are not set out as a mandatory industry requirements.

We hope and expect that following publication and wider circulation of these guidelines that we will receive comments and feedback as to their practical scope and application. The results of this feedback will influence how these guidelines may evolve and develop in the future.

Introduction

RenewableUK recognises its responsibility to take a lead on health and safety matters as they relate to the risks particular to the renewable energy sector. We re-affirm our commitment to ensure that Health & Safety remains the top priority in the wind, wave & tidal industry and that best practice should be applied to ensure the good reputation of renewable energy generation. RenewableUK is committed to promoting best practice and developing and communicating health and safety knowledge and experiences as they develop.

These health and safety guidelines provide basic information on how duty holders¹ can endeavour to apply a common approach to conducting suitable medical fitness for work assessments for employees working on UK based renewable energy projects. It also provides information to occupational health professionals to assist their decision making when carrying out a medical assessment of fitness for work for wind turbine technicians. (See also scope below). Unless or until a nationally agreed standard for medical fitness for work has been approved, duty holders in partnership with their medical advisers will be free to make their own decisions as to the precise nature and scope of any medical assessment performed. However this guide represents industry good practice and Renewable UK would recommend that every effort is made to ensure, as a minimum, that these guidelines are met.

¹ Typically this will be the employer, as defined by health and safety legislation

Background

The rapid growth of the renewable energy sector is expected to lead to a radical change in the employment landscape across the UK. The increased numbers of technicians and engineers will present many challenges from an occupational health perspective. In order that the industry ensures the continued availability and long term employment of fit and healthy workers a proactive policy on managing medical fitness for work and related occupational health issues is essential.

The benefits of adopting a proactive approach to managing occupational health issues generally and medical fitness for work assessments more specifically are well recognised. However the primary purpose of this document is to provide practical information to duty holders to ensure a more consistent understanding of how medical fitness for work assessments can effectively be addressed by the industry. At present this document merely reflects current industry good practice². However subject to wider consultation and industry agreement a national standard could in the future be agreed.

Scope of this Document

This guide only provides information on nature and scope of medical fitness³ for work assessments provided to wind turbine technicians and other personnel who may need to work, access and climb a medium or large wind turbine⁴. It does not aim to address issues relating to lifestyle and well being of the worker; statutory health surveillance, in house occupational health policies or rehabilitation or return to work assessments. The recently introduced “fit note”⁵ is not considered in any detail within this guide. Professional occupational health advice must be taken in making judgments about the capability of an individual returning to work following injury or ill-health.

This guide only applies to medical fitness for work assessments performed for onshore and near offshore⁶ work within the UK. This document sets out:

- A general description of medical fitness for work including its role and function;
- A short summary of the legal context and possible statutory duties;
- Advice on accessing competent occupational health support;
- An introduction to the medical fitness for work guidelines;
- Details of recognition of other medical standards; and
- An overview of the context to address the practical application and communication of the guidance.

To date there has been no industry specific guidance or information that clearly sets out the scope or requirements for medical fitness assessments particular to the renewable energy sector. Whilst this document represents an important milestone in setting out the key issues, it should be emphasised that operational best practice in this area is developing rapidly. In every situation duty holders should take appropriate professional medical and health and safety advice before acting or refraining from any specific plan or programme.

3 The term “medical fitness assessment” is used throughout the document. Whilst the term fitness assessment is a well understood term in this area we have made explicit the reference to “medical fitness” assessment to avoid any confusion with fitness assessments carried out to assess the physiological demands of essential tasks

4 These guidelines only apply to medium and large wind turbines i.e. those with a swept area of >200m² and where the primary means of access to the nacelle is internal to the tower.

5 See www.dwp.gov.uk/fitnote/

6 Where travel by boat or other means is less than 2 hours and involves no overnight stay offshore. (This would typically include travel involving commercial vessels certified up to but not exceeding MCA Category 3). These guidelines do not specifically address wave and tidal applications, although most of the principles and practice will be very similar. The guidelines exclude transfers involving helicopters.

Medical Fitness for Work

The primary purpose of a medical fitness assessment for work is to ensure that an individual is fit to perform the work/task they are required to carry out without putting their own or others (e.g. work colleagues) health and safety at risk⁷. This should include an individual's condition:

- Limiting, reducing or preventing them from performing a job effectively (e.g. musculoskeletal or cardio-respiratory conditions restricting the ability to climb a turbine, work in a confined space or in hot conditions);
- Being made worse by a job (e.g. cardiac conditions exacerbated by physical exertion);
- Making certain jobs/tasks unsafe (e.g. potential loss of consciousness and the risks associated with falls from height); or
- Ensuring there are no underlying medical conditions that could compromise the safe emergency rescue of the individuals or colleagues. (e.g. emergency rescue in remote locations and offshore).

General scope of a medical assessment

Any medical assessment performed would normally be reported in terms of the functional ability of the individual to perform the work or task involved. In carrying out any medical assessment proper consideration should be given to an individual's functional capacity balanced against the specific requirements and demands of the job. For example:

Functional assessments - these would typically need to consider the:

- Physical systems (e.g. mobility, locomotor, muscular, balance, aerobic fitness, co-ordination etc.);
- Sensory (e.g. vision & hearing);
- Cognitive function; and
- Mental wellbeing.

Requirements of the job – when these are considered specific consideration should be given to:

- Work demands (e.g. mobility, strength, lifting, climbing);
- Work environment (e.g. confined spaces, hot conditions, exposure to low temperatures, working at height);
- Organisational issues (e.g. remote working, working in small groups);
- Temporal aspects (e.g. shift work, working hours);
- Ergonomic aspects (e.g. work spaces, controls, etc.); and
- Travel (e.g. remote access to health care).

These guidelines do not advocate that functional assessments must be performed in every situation. However where they are concluding as being appropriate⁸ then the framework set out in Appendix I would be expected to adequately address the principal health issues when conducting a functional assessment for the specific risks associated with the typical work of a wind technician⁹.

Further consideration may also need to be taken by the employer in conjunction with the medical adviser to ensure that where necessary consideration is given to any "reasonable adjustments"¹⁰ that may be required in order for the individual to perform the role safely and without risk to their own health or that of others.

⁷ More detailed background is provided by Palmer K, Cox, R & Brown I, Fitness for Work – The Medical Aspects, Faculty of Occupational Medicine (2007) – Chapters 1 & 2

⁸ For example based on the conclusions of suitable risk assessments performed and professional medical advice

⁹ Including other employees where the requirements of the job may be similar

¹⁰ As defined by disability legislation – See also opposite

Legal Context

Currently there are no specific UK regulations or industry standards that specifically apply to medical fitness for work for the renewable energy sector. However an extensive range of general health & safety and employment related laws will apply. These are not considered in detail but the most relevant are likely to include but are not limited to:

Health & Safety

- Health and Safety at Work etc. Act 1974 ('HSW') – places duties on employers to ensure the health, safety and welfare of employees and others so far as reasonably practicable; and
- Management of Health and Safety at Work Regulations 1999 – absolute duty to carry out suitable and sufficient risk assessments. Health surveillance can be a requirement of these Regulations but is not the subject of these guidelines.

Medical fitness for work health assessments are not an explicit requirement of the Work at Height Regulations 2005 but are viewed as part of "suitability" for the task as required by the Confined Spaces Regulations 1997. Suitable and sufficient risk assessments should be conducted as a matter of good practice which may conclude that medical assessments are appropriate.

Employment Laws

An extensive range of employment and disability laws apply within the UK. They are not industry specific. The most relevant in the context of medical assessments for work include but are not limited to:

- Employment Rights Act 1996;
- Equality Act 2010;
- Working Time Regulations 1998; and
- Social Security (Medical Evidence) and the Statutory Sick Pay (Medical Evidence) (Amendment) Regulations 2010 ("Statement of fitness to work").

Professional advice should be taken to determine the relevance and application of these statutes with respect to medical fitness for work issues.

Access to medical and occupational health support

Although most of the practical medical checks carried out are likely to be carried out by a fully qualified occupational health nurse it is strongly recommended that the medical assessments are conducted under direct control and supervision of a qualified occupational physician. Employers are responsible for ensuring that anyone conducting fitness for work assessments is competent. Details on how to select a provider are available from the Faculty of Occupational Medicine¹¹.

RenewableUK does not recognise or approve any specific schemes or organisations to conduct fitness for work assessments. However medical practitioners approved to carry out Oil & Gas UK¹² or MCA (e.g. ENG-1) medicals and consultant occupational physicians will probably be deemed competent to conduct the fitness for work assessments set out below.

11 www.facocmed.ac.uk/library/docs/empopguid.pdf

12 www.oilandgasuk.co.uk/knowledgecentre/doctors.cfm

Medical Fitness for Work Guidelines

The guidelines set out in Appendix I set out a recommended approach when undertaking medical fitness for work assessments for near offshore and land based wind energy projects. The scope and content of the guidelines have been written by the electricity industry's Occupational Physicians Advisors Group (OHAG)¹³ in association with RenewableUK's Occupational Health Group.¹⁴

Specifically it sets out:

- A health assessment to detect and assess any medical conditions that may compromise safety by creating a risk of falling or sudden incapacity requiring rescue; and
- A medical fitness assessment to assure capability for regular climbing of vertical ladders and for working in hot and/or confined spaces.

The range of medical conditions listed is not intended to be exhaustive. Physicians may need to consider other medical conditions which are relevant to the individual being assessed.

The guidelines do not set out any specific protocol for dealing with individuals who may have "failed" the medical assessment. This will need to be agreed and clearly set out between the occupational physician and the individual concerned. This could for example include undertaking a suitable programme of cardiovascular exercises or any other suitable intervention as directed by the occupational physician.

The recommended fitness for work guidelines are set out in Appendix I. It should be emphasised that the guidelines do not aim to set out a prescriptive medical assessment methodology to address every possible medical condition or scenario that may be encountered. The approach recommended relies on the professional capability of the occupational physician to make an informed opinion as to the medical fitness of the individual concerned following a full understanding of the work, physical demands and the role the individual is expected to perform. Where the initial assessments are carried out by an occupational nurse a clear referral process would need to be in place to ensure that any complex or borderline cases are referred to the supervising occupational physician.

¹³ Occupational Health Advisory Group for the Electricity Industry (OHAG) is an independent body of senior occupational physicians working full-time within the industry

¹⁴ In addition to consultation with RenewableUK members and key stakeholders

Recognition of other medical standards

RenewableUK does not recognise or approve any specific schemes or organisations to conduct fitness for work assessments. This is because at present these guidelines are only intended to address the particular medical fitness for work issues relevant to the current risk profile of the renewable energy sector. In the event that medicals are being conducted by providers who currently undertake other offshore medical certification schemes (e.g. MCA Seafarer Medical Certificate (ENG1) or the Oil & Gas UK Medical Certificate) the responsible occupational physician should ensure that he/she is familiar with the tasks involved in land based or near off shore wind turbine work so they can determine whether any health issues identified during the medical assessment are relevant to the particular candidate's fitness for work.

It should be noted that neither the MCA¹⁵ or the Oil & Gas UK medical certification schemes were designed to reflect the specific risks that are particular to the renewable energy sector as reflected in these guidelines.

15 "The MCA standards should not be used except for the crews of vessels. Employment decisions for wind farm technicians based on these standards will not be valid, may not be safe and could leave the employer open to a legal challenge if a person is denied employment" – MCA Chief Medical Adviser, March 2011

Practical application

As set out in the introduction, these guidelines aim to provide basic information to duty holders and others to ensure a consistent understanding of how medical fitness for work assessments can be addressed. At present they merely reflect a general consensus of what is industry good practice based on consultations with RenewableUK members and key stakeholders. Following wider consultation and industry agreement a national standard/scheme could in the future be agreed. However in the absence of such a standard duty holders are encouraged to familiarise themselves with the guidelines and in particular consider the following additional practical recommendations:

- Knowledge and understanding of the guidelines will initially be low. You are therefore encouraged to talk to your appointed occupational health provider to make sure they are familiar with the nature and scope of the guidance. This should include setting out and agreeing the contractual and practical expectations between all parties concerned in undertaking the medical assessments performed; and
- Medical fitness to work assessments are frequently carried out for offshore work. In view of this it is encouraged that the assessment is conducted prior to any personal sea survival training that may be carried out.

These guidelines are not intended to cover medical fitness to work issues where workers are not intending to return to shore within a single 24 hour period. RenewableUK will carry out further consultation to review how these guidelines may be extended to take this into account.¹⁷

¹⁶ The requirements of this act are complex and so you are advised to take appropriate professional advice if you are in any doubt as to its specific scope and application
¹⁷ For example this would include a number of Round 2.5 and most Round 3 projects. See www.renewable-uk.com

Appendix

1. Introduction

Working on near offshore and on land based wind turbines presents a number of physical and psychological challenges:

- Exertion – climbing very tall vertical ladders (e.g. 80m) and potentially assisting with the rescue of an ill or injured colleague.

When there is no lift or a failure of the lift, it is necessary to climb a long vertical ladder to access the nacelle. This requires a degree of cardio-respiratory fitness, strength in the limbs and the absence of musculoskeletal disease. Workers may have to climb several times a shift. They must also be able to manhandle a colleague in a confined space.

- Hot working environment within the nacelle especially in summer.

This presents a cardiovascular challenge.

- Work in confined spaces e.g. on and under the generator, in the hub and internals of blades.

Musculoskeletal flexibility is important for such work and the risk of a predictable collapse from a pre-existing medical condition must be minimised.

- Sea survival training (off shore turbines)

In addition to adequate mobility, the training requires a stable, robust mental state.

- Work in cold and adverse conditions

Except in summer, the sea voyage to offshore turbines and climbing vertical ladders (both external and internal) can expose workers to very low temperatures and sea spray. Onshore turbines are in exposed locations.

Peripheral circulation and the condition of the skin must be assessed.

- Need for agility

When transferring from a vessel to the tower platform.

- Need for good hearing

Communication is direct or using radio phones and can take place in a noisy environment (from mechanical tools or marine engines).

- Vision

Good vision is required for a safe transfer from vessel to the tower platform and for awareness of physical hazards in the confined space of the nacelle.

2. Aim(s) of this document

This document provides guidance on the medical assessment of those working both onshore and near offshore in the wind energy business. Guidance is provided on:

- health assessment to detect and assess any medical conditions that may compromise safety by creating a risk of falling, sudden incapacity requiring rescue or an adverse

- impact on the safety of others;
- fitness assessment to assure capability for regular climbing of vertical ladders and for working in hot, confined spaces;
- climbing workload to provide a safe approach to managing work tasks by specifying climbing heights and frequencies.

3. Pre-work fitness assessment by Supervisor

Where feasible, the individual who intends to climb wind turbine towers should be asked a few simple health questions by their Supervisor. These would deal with recent new medication, alcohol consumption and current illness. An Occupational Health opinion should be sought where positive answers are given.

4. Relevant Legislation

- Health & Safety at Work etc. Act 1974;
- Management of Health & Safety at Work Regulations 1999;
- Confined Spaces Regulation 1997; and
- Equality Act 2010.

5. Assessment Process

A health assessment should be undertaken at pre-employment, pre-placement and after any significant incident, injury or sickness absence. Periodic assessments should be undertaken every two years but

may be necessary more frequently in an individual case where this is recommended by the examining physician. The assessment should consist of a medical history questionnaire, clinical examination and a fitness assessment. The assessment may be undertaken by an occupational health nurse with reference to a suitable qualified and experienced doctor for specialist advice. Any employee who works on wind turbines and who develops a medical condition that is a cause for concern should always seek occupational health advice before starting work.

Health Assessment

a) Vision

Visual acuity must be adequate for safe work and will normally be at least 6/9 in the better eye and 6/12 in the worse eye (with correction if worn). Where vision is impaired, an individual risk assessment should consider fitness for the task. Visual fields should be full in both eyes. Monocular vision is generally not acceptable, but where there is good adjustment to a long standing impairment, work on wind turbines may be permissible. Vision may be tested using Snellen's chart or Keystone apparatus. Spectacles (including prescription safety glasses) or contact lenses may be worn for correction.

b) Hearing

Hearing should be assessed using a practical test. Audiometry is normally not required but may be appropriate to determine baseline hearing levels if exposure to noise will be above the Action Level under the Control of Noise

at Work Regulations 2005. There must be no significant hearing impairment because the employee must be able to hear voice communication and auditory warnings over a distance of 10 metres in an outdoor environment.

c) Cardiovascular system

Significant abnormalities of the cardiovascular system, including past myocardial infarction, cardiac surgery or percutaneous coronary intervention, will require medical assessment by the doctor. Any conditions that may cause cardiac symptoms on exertion or sudden loss or impairment of consciousness are contraindications to working on offshore wind turbines. Poorly controlled blood pressure is also a bar as is any rhythm disturbance that causes or could cause impaired consciousness.

d) Respiratory system

Climbing vertical ladders within turbine towers requires good respiratory function. Severe chronic obstructive airways disease (COAD), asthma or previous lung surgery may impact on fitness and, therefore, require an assessment by the Physician. Seasonal hay fever is not a contraindication. Respiratory function may be assessed by spirometry.

e) Locomotor system

A full range of movement of the back, neck and all four limbs is necessary for safety in climbing vertical ladders and working in confined spaces within the nacelle. Joint replacement may be a contraindication but individual assessment is required. There must be no significant muscular weakness in the

finger flexors, elbow flexors, shoulder girdle muscles and knee extensors.

f) Nervous system

Any current or recent history of unexplained loss of consciousness, seizures, epilepsy or vertigo requires assessment. Where the condition is well controlled or unlikely to recur, the physician may consider the candidate acceptable for wind turbine work. Diseases causing muscle wasting or weakness, lack of co-ordination, severely impaired sensory modalities in the limbs or impaired mobility are contraindications if they would preclude the worker from climbing a very tall vertical ladder safely.

g) Diabetes

Well-controlled diabetic workers who do not suffer hypoglycaemic attacks may be considered fit, but should have a full medical assessment by the Physician. Non insulin dependent diabetics are generally suitable. However, poorly controlled or brittle insulin dependent diabetes is a contraindication. Thus, diabetic control must be considered at each health assessment.

h) Mental state

Mental illness involving psychosis or severe anxiety and depression is usually incompatible with work offshore. Persons with mild depression or short-term stress related illness and those being treated with psychotropic medication will need to be assessed carefully, taking into account issues such as impaired decision making and concentration and possible side effects of treatment on fitness.

i) Drugs and Alcohol

Workers' physical and mental fitness must not be impaired through the abuse of alcohol or prescribed or illicit substances as these are likely to have adverse effects on their judgement, concentration, memory and behaviour. Medicines taken for seasickness can cause drowsiness and impair performance. If chronic alcohol or drug abuse is suspected, the worker must be suspended from work until advice has been obtained from the physician. Testing for drugs and alcohol at pre-placement health assessments (or in other situations such as unannounced or "for cause") is not essential but, in any case, should not be undertaken unless the protocol complies in full with the guidance provided by the Faculty of Occupational Medicine.

j) Skin

Sun sensitive skin conditions may preclude working out of doors. Other skin conditions may impair manual dexterity or limit the wearing of PPE. Some, such as psoriasis, are exacerbated by sea water. Thus, each case must be assessed individually. The rungs on ladders are square in cross section and place considerable pressure on the palms.

k) Peripheral circulation

Impairment of the peripheral circulation (eg, Raynaud's Disease or the vascular component of Hand Arm Vibration Syndrome) may be a contraindication because of the risks associated with work in cold conditions.

l) Obesity

Obesity is not a contraindication per se but agility and mobility must not be significantly impaired and anyone who is substantially overweight is likely to have difficulty achieving the required level of cardio-respiratory fitness.

m) Physical Fitness to Climb

Good cardio-respiratory physical fitness is necessary for the climbing aspect of work on wind turbine towers (in the event of lift failure or where there is no lift installed). Therefore, a test of cardio-respiratory fitness should be performed at each health assessment. To ensure consistency across the industry, it is recommended that estimated maximum oxygen uptake (VO₂ max) is used as the measure of fitness. Various methods are available to estimate VO₂ max indirectly such as the shuttle run or Chester Step Test. (Direct measurement requires costly sophisticated equipment and special expertise.)

As normative data are available, it is recommended that estimated VO₂ max in those working on wind turbines should be at least 35 mL/kg/min. Where this level of cardiorespiratory fitness is not achieved, the individual should be advised to undergo appropriate fitness training and, where appropriate, dieting to achieve a suitable weight. Re-testing should be arranged if the person believes they have achieved sufficient cardio-respiratory fitness.

n) Other health concerns

The above list of medical conditions and symptoms is not exhaustive. The physician conducting the examination may feel it necessary to consider other medical problems specific to the individual whose fitness is being assessed.

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