

OVERHEAD POWER LINES



Health and Safety Guidance Note



NFU Mutual
RISK MANAGEMENT SERVICES

INTRODUCTION

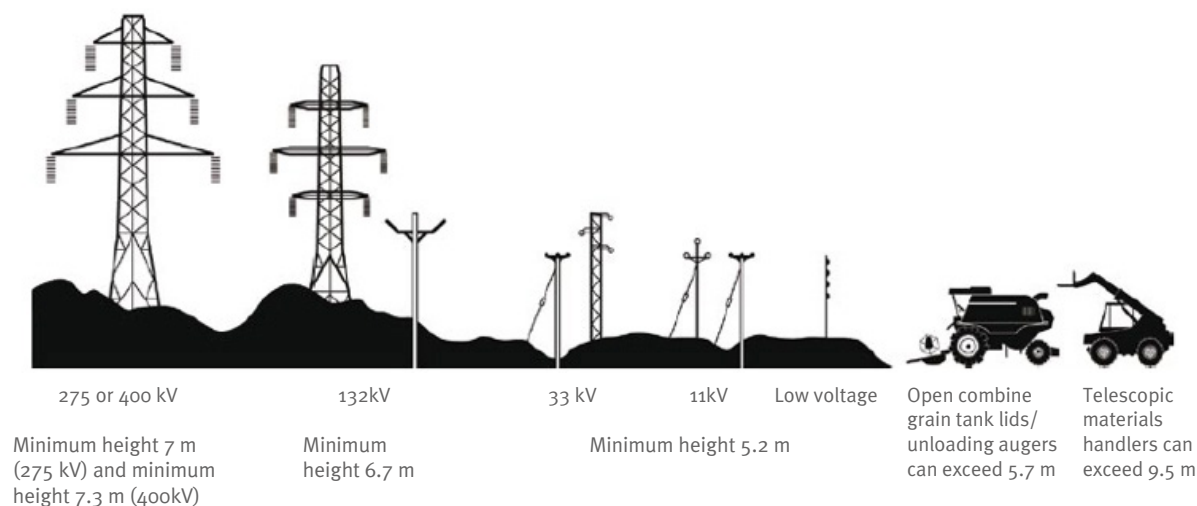
People are killed and seriously injured each year in incidents involving live overhead power lines (OHPLs). Incidents are sometimes down to poor planning and work practices, but more often than not are connected to a simple failure to notice them when rushing, tired, under pressure, cutting corners, or due to poor visibility.

If a conductive machine or item of equipment, or even a jet of water comes into contact with an OHPL, electricity will be conducted through it to earth. In some cases you do not even need to touch the line, electricity can flashover or arc (jump across gaps).

This guidance note contains important information that will help you manage the risks from OHPL's on your premises (e.g. in fields, yards etc.) or if you carry out work at third party premises where they may be present.

WHAT ARE THE HAZARDS?

OHPLs typically carry electricity at voltages ranging from 11 kV to 400 kV and the lines are often uninsulated (bare) cables. Touching anything in contact with live electrical equipment (even at the lowest voltage) can be fatal. The height of the line usually varies according to the voltage carried (see image below) -so for example any 11 kV or 33 kV OHPL on your land should be at least 5.2 m above the ground. However electrical equipment mounted on poles may be lower than the clearances specified in this guidance (e.g. they may have sagged or the ground may have been raised underneath etc.).



Source: HSE

You, your employees and/or contractors may be at increased risk when using tall or high-reach equipment (e.g. combines, sprayer booms, telescopic handlers, tractors with fore-end loaders, tipper vehicles/trailers, lorry mounted cranes (such as HIABs), mobile elevated work platforms (MEWP's), excavators, diggers, etc.). Remember that by fitting radio aerials, flashing beacons or when using discharge augers or grain tank extensions on combines, the overall height of your machinery may be increased.

In addition other common activities may also create a risk of contacting OHPLs, including operating rain or slurry guns; moving irrigation pipes or long boom irrigators; building/dismantling stacks (e.g. bales or fruit bins); moving aluminum ladders or scaffold poles; erecting polytunnels and other temporary structures; or construction work (e.g. erection of steel-framed buildings).

Risks to third parties should not be overlooked, with leisure activities you may allow on your land such as fishing and kite/model aircraft flying are also potentially hazardous when carried out near OHPLs.

RISK ASSESSMENT

A thorough risk assessment is essential before starting or allowing any of the previously mentioned (or other high risk) activities near OHPLs. When carrying out your risk assessment you should:

- Establish the maximum height and maximum vertical reach of relevant machinery to be used (both your own, and that of any contractors used);
- Mark the routes of all OHPLs on the land or near boundaries on a map, along with the maximum working heights permitted under each section – this can then be used as a reference when assessing risks, or planning other work, instructing machine operators and contractors, planning access routes or buying new or used equipment;
- Ensure you have information about all the OHPLs on the land – if not, contact their owners;
- Seek advice from the electricity distribution network operator (DNO) and/or the National Grid on line heights, minimum vertical clearance distances and precautions to take where necessary (DNOs can also arrange to have the height of the lines checked – operating voltages are displayed on signs attached to steel towers);

- Refer to Energy Networks Association guidance on clearance distances (see ‘Further Guidance’).

When considering what control measures you need to put in place, you should follow the preferred hierarchy of measures as follows:

- Avoid working near OHPLs if you can (e.g. by creating alternative access routes or work areas);
- Consider re-routing or burying OHPLs where machines often pass below them – this should only be done in consultation with the DNO – **DO NOT ATTEMPT THIS WORK YOURSELF!**;
- Where you can’t relocate OHPLs, select machines that can safely pass below the lines without being able to reach the vertical clearance distance;
- Vehicles, plant, machinery, equipment, or materials that could reach beyond the safe clearance distance should not be taken near the line;
- If short duration work is necessary close to OHPLs, consult the DNO who may be able to arrange for the power supply to be temporarily switched off;
- Where work near OHPLs is unavoidable, you will need to carry out thorough, specific risk assessments and implement safe systems of work.
- Highlight the location of OHPLs by displaying suitable hazard warning signs in prominent positions and supplementing them with appropriate text (e.g. ‘Danger – overhead power lines’).

WORKING SAFELY NEAR OHPLS

The law requires that work may be carried out in close proximity to live overhead lines only when there is no alternative and only when the risks are acceptable and can be properly controlled.

When work near OHPLs is unavoidable, there are some key things that you can do to reduce the risks, including:

- Selecting machinery that will not reach more than 4 m from the ground (including folding or extending elements) – consider the heights of OHPLs on your land when buying new or replacement machinery;
- Ensuring machinery is used in a safe manner (e.g. retracting booms of telescopic handlers and keeping them close to the ground when moving; lowering tank lids and ensure that unloading augers on combines are stowed and not in the extended/unloading position; using sprayers with horizontally folding booms and never fold vertical sprayer booms on the move; fitting shorter radio aerials and beacons and repositioning or removing existing ones on high machines, taking care not to damage poles and stays);
- Taking extra care at dusk, in darkness or in poor visibility when it becomes harder for machine operators to see OHPLs;
- Avoiding high risk activities (e.g. stacking materials, tipping trailers, carrying out any maintenance work on top of the machinery etc.) within a horizontal distance of at least 10 m from OHPLs (measured from the line of the nearest conductor to the work);
- Vehicles such as cranes, excavators and tele-handlers should be modified by the addition of suitable physical restraints so that they cannot reach beyond the safe clearance distances, measures should be put in place to ensure these restraints are effective and cannot be altered or tampered with;
- Erecting suitable passageways (using “goal posts” and signage) to ensure safe clearance distances when passing underneath OHPLs.

Specific information on working safely near OHPLs is provided in the HSE agricultural leaflet AIS8 Working Safely near Electrical Overhead Power Line (see “Further Guidance” below), which includes specific work instructions for:

- Rain and slurry guns;
- Long boom irrigators;
- Sprinklers;
- Fencing;
- Stacks and temporary structures;
- Construction work.

INFORMATION, INSTRUCTION, TRAINING AND SUPERVISION

Following your risk assessment and implementation of the control measures identified, you will need to provide anyone carrying out relevant work near OHPLs with information about the hazards, the risks and the precautions to follow, including what to do if they contact the line.

Ensure that contractors and temporary workers are included (they may be at even greater risk due to unfamiliarity). Especially where their first language is not English, you must ensure that the instructions are clearly communicated and understood.

It is important that workers are appropriately supervised. Effective supervision can help you monitor the effectiveness of the training that people have received, and whether employees have the necessary competence to do the job.

WHAT'S THE BEST COURSE OF ACTION IF CONTACT IS MADE WITH AN OHPL?

It is vitally important that you, your workers and anyone else working on your land is aware of the right action to take if a vehicle they are using is involved in an incident with an OHPL. Ensure that they are aware of the correct procedures, including:

- Stay in the cab of the machine;
- Try to lower any raised parts in contact with the line or drive clear if possible;
- Inform the DNO immediately (ensure the telephone number is displayed in cabs of relevant vehicles or on operators' mobile phones);
- If it's necessary to leave the vehicle (e.g. in case of fire), JUMP well clear – touching the machine and the ground at the same time (e.g. by climbing down) is likely to result in electrocution;
- Do not touch any wires (e.g. those that have fallen/sagged) or disentangle equipment until you have received confirmation that the line has been de-energised and made safe;
- Stay clear and warn others not to approach;
- Get the DNO to disconnect the supply - even if the line appears dead, do not touch it, or any part of the machine (the power supply may trip out temporarily and be reconnected and re-energised automatically, without warning).

FURTHER GUIDANCE

- HSE website “Overhead Power Lines”
www.hse.gov.uk/electricity/information/overhead.htm
- GS6 HSE Avoiding danger from Overhead power lines Guidance Note
www.hse.gov.uk/pubns/g6.pdf
- AIS8 Working Safely near Electrical Overhead Power Lines
www.hse.gov.uk/pubns/ais8.pdf

These documents are available to download free of charge from www.hse.gov.uk/pubns/books

Information is also available from the Energy Networks Association (ENA): www.energynetworks.org and the Distribution Network Operators publish information on their own websites. Safety information is also available from the National Grid at www.nationalgrid.com/uk/electricity.

- ENA Farming – Overhead Power Lines Safety Campaign
www.energynetworks.org/electricity/she/safety/safety-advice/overhead-power-lines-safety-campaign.html
- ENA Transport – Overhead Power Lines Safety Campaign
www.energynetworks.org/electricity/she/safety/safety-advice/overhead-power-lines-safety-campaign-transport-hauliers.html
- ENA The safe use of mechanical plant in the vicinity of electricity overhead lines
www.energynetworks.org/assets/files/LookoutLookup_070918.pdf
- ENA Farmers & Agricultural Contractors
www.energynetworks.org/assets/files/electricity/she/public_safety/leaflets/Updated%20Oct%202018/Public_Safety_Leaflet_Farmers_Agriculture_Oct18_web-version.pdf
- ENA General Trade and Maintenance
www.energynetworks.org/assets/files/electricity/she/public_safety/leaflets/Updated%20Oct%202018/Public_Safety_Leaflet_General_Trade_Maintenance_Oct18_web-version.pdf

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