Guidance - Agriculture

Look Out, Look Up!

Safety information for farmers and agricultural contractors working in close proximity to overhead power lines

1.
Working safely in close proximity to overhead power lines

Every year in the UK people are killed and many more are injured when mechanical plant and machinery comes into contact or close proximity to overhead power lines.

This guidance has been developed by the Energy Networks Association (ENA) on behalf of all UK electricity network operators specifically for workers in the agricultural sector, with the support of the National Farmers' Union (NFU) and the National Association of Agricultural Contractors (NAAC).

By following this guide, those involved in operating agricultural machinery can help to ensure that no one gets killed or injured while working around overhead power lines.

2. Definitions:

Statutory clearances

The minimum legal height above ground of overhead power lines are set out in *Electricity Safety, Quality and Continuity Regulations 2002, as amended (ESQCR).* For 11,000 and 33,000 Volt equipment the minimum height is 5.2 metres.

Note: Live equipment fitted on poles can be as low as 4.3 metres.

Low voltage (LV)

The supply voltage to domestic and small commercial premises typically is 230/415 Volts.

High voltage (HV)

Between 1,000 Volts (1kV) and 33,000 Volts (33kV).

Extra high voltage (EHV)

From 33,000 Volts (33kV) and above.

Passing clearance

The minimum safe clearance that applies to any machinery or equipment to safely pass beneath overhead power lines.

Working clearance

The minimum safe clearance that must be maintained when operating machinery or equipment near an overhead power line.

3. Before starting work

Overhead power lines can be seen, so before you start work always:
Stop, Look Out and Look Up!

Carry out a risk assessment

By conducting a risk assessment, you can identify potential dangers and implement measures to prevent accidents, injuries, and damage to property.

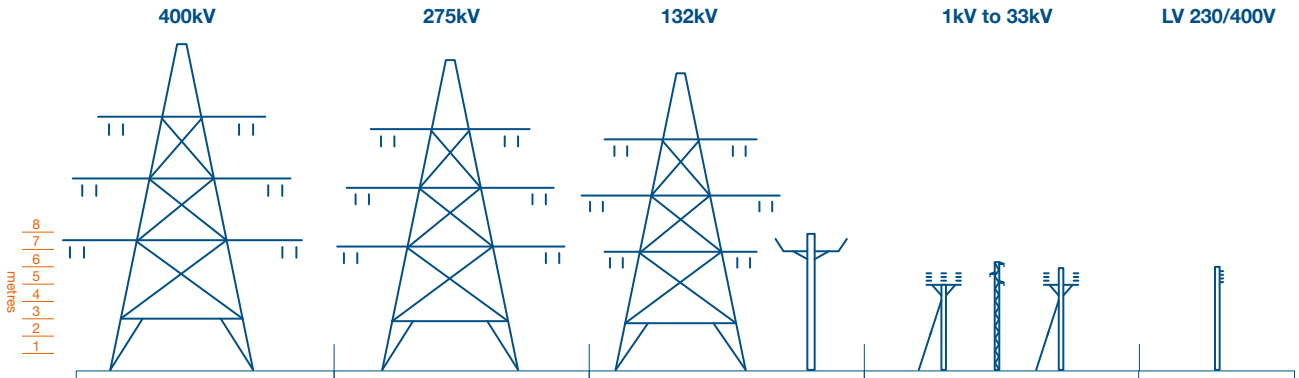
An overhead power line risk assessment must be carried out if you are working within 10 metres of overhead power lines:

- Find out the routes of all overhead power lines on your land or near your boundaries and mark them on the farm map.

Note: Further details of the overhead power line locations in the area can be provided upon request from the electricity network operator (Please allow sufficient time for your electricity network operator to provide these details to avoid last minute requests).

- Ensure a map of overhead power line is provided to all contractors working on the farm (they may be there at night when hazards are harder to see).
- Ensure you understand the minimum height above ground of the overhead power lines and the minimum passing and working clearances (detailed within this document).
- Ensure you know the maximum height and maximum vertical reach of any machinery you plan to use.
- If using GPS guidance systems, please ensure that accurate pole or tower location information is used.
- Heights of overhead power lines can be measured by using non-contact measuring equipment. If you require assistance, ENA electricity network operators may also arrange to have the height of the lines measured.
- Overhead power line heights can fluctuate considerably with temperature, it is important to ensure that any measurements are taken as close as possible to the time when work is taking place.
- Do not assume that the overhead power line height is at statutory clearance, the lines can be higher. If you think that the overhead power lines are below statutory clearance, you should urgently contact the local electricity network operator to remedy the situation.

Minimum heights above ground level for overhead power lines:



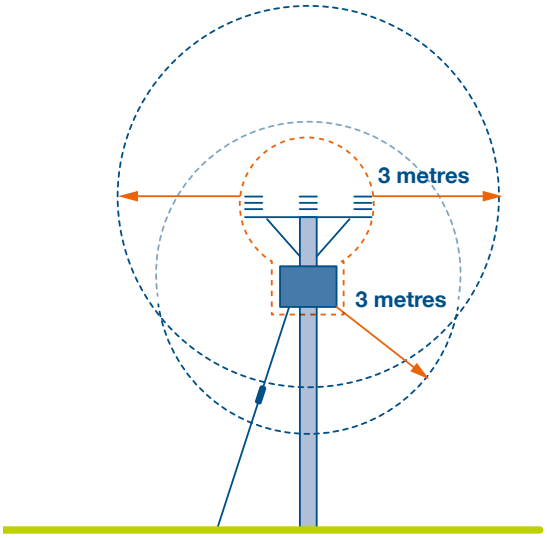
	400kV	275kV	132kV	1kV to 33kV	LV 230/400V
Minimum height above ground	7.3 metres	7 metres	6.7 metres	5.2 metres	5.2 metres
Exclusion zone distance	6 metres	5 metres	4 metres	3 metres	1 metres

Note: All towers will have signage denoting the voltage.
If the signage is worn or not clear, call your local electricity network operator on 105 for GB, or 03457 643 643 for Northern Ireland.

CALL 105

Poles with transformers and other equipment

These poles have live equipment that can be as low as 4.3 metres from the ground. Additional precautions may be required if work activities are carried out within 10 metres of these structures. It is recommended to undertake any work at a minimum of 3 metres away from these structures at all times.



4.
Key work activities

Spraying

Spraying is high risk when working and passing beneath overhead power lines due to the varying nature of the machinery components (booms etc).

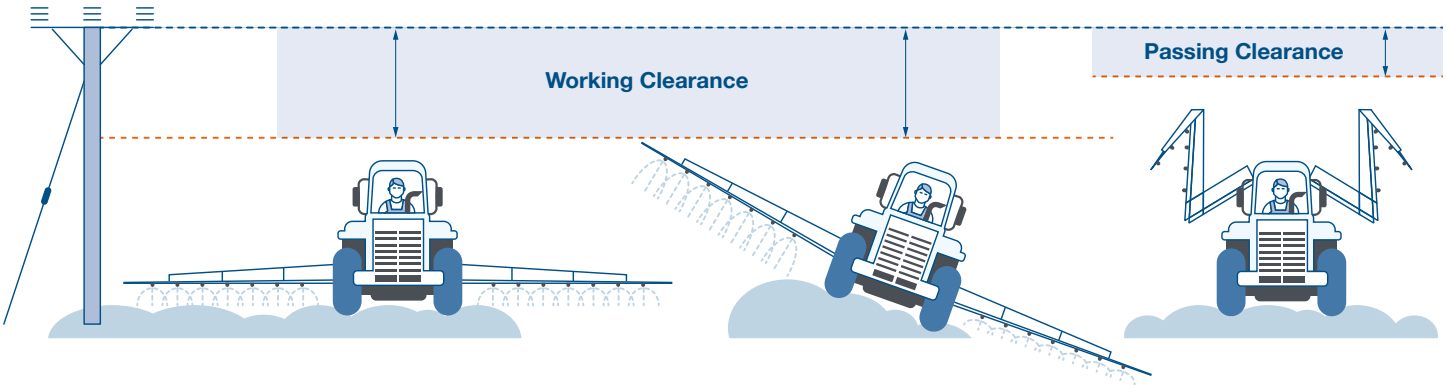
When assessing risk, be mindful that the use of extendable booms from the machinery when spraying can, depending on the topography, fluctuate considerably in height and in certain circumstances become higher than the height of the vehicle. For example, where a 20-metre-long boom is working on a 6 degree incline, this will result in approximately 2 metres reduced clearance. Ground conditions and the level of the ground are critical factors when determining the risk.

For Spraying:
Working clearances should be applied for any activity taking place where the booms are extended in the vicinity of overhead power lines (e.g. in operation). Passing clearances only apply when the booms are folded, inoperable and of fixed height.

Note: Stowing and folding/unfolding of the booms must be carried out at least 10 metres away from overhead power lines.

Clearances for Spraying

Voltage	Working near overhead power lines Working Clearance	Passing under overhead power lines Minimum Passing Clearance
230/415V	3 metres	1 metre
1kV - 33kV	3 metres	1.5 metres
132kV	6 metres	2.6 metres
275kV	7 metres	3.6 metres
400kV	7 metres	4.3 metres



Harvesting

Harvesting presents a high risk when working underneath overhead power lines due to the varying nature of the ground conditions, ground levels and potential height variations of equipment/machinery (e.g. aerials, hatches, chutes, auger or other components extending above the main body of machinery).

For Harvesting: Passing clearances can be applied provided that everything on the machine is operating at a fixed height and the conditions at ground level will not inadvertently reduce clearances to the overhead power lines.

If there is any doubt, working clearances should be applied.

Clearances for Harvesting

Voltage	Working near overhead power lines Working Clearance	Passing under overhead power lines Minimum Passing Clearance
230/415V	1 metres	1 metre
1kV - 33kV	3 metres	1.5 metres
132kV	6 metres	2.6 metres
275kV	7 metres	3.6 metres
400kV	7 metres	4.3 metres

Tipping, lifting and loading

Tipping
Tipping refers to the process of unloading or emptying a load from a vehicle or container, such as a trailer or telehandler.

Lifting
Lifting involves raising or moving heavy equipment or objects such as bales of hay or bags of feed, using machinery like telehandlers, forklifts or tractors.

Loading
Loading is the process of placing or securing items, such as harvested crops, equipment or livestock, onto a transport vehicle or storage area. Loading can involve manual labour or the use of machinery.

All these activities are high risk and, where possible, should take place at least 10m from the overhead power lines. If work has to be done closer than 10m then additional precautions must be taken.

When lifting and/or loading, care must be taken to keep the objects as low as possible.

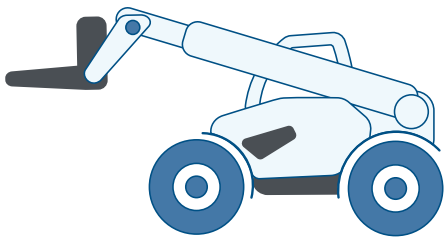
Plan any lifting to be done in a way that does not encroach on the overhead power line working clearance.

When this work is done by hand, long objects should be carried horizontally, using two or more people.

For tipping, lifting or loading:
Working clearances should be applied for all activities.

Clearances for Tipping, Lifting and Loading

Voltage	Working near overhead power lines Working Clearance
230/415V	1 metres
1kV - 33kV	3 metres
132kV	6 metres
275kV	7 metres
400kV	7 metres



Hedge cutting

Overhead power lines supported by wood poles frequently run along the same routes as hedgerows and this risk needs careful consideration.

It is advised that where tractor mounted mechanical attachments are deployed for hedge cutting that they go no closer than 3 metres of a wood pole and/or associated stay wires. Where it is necessary to get closer than 3 metres to a pole, it is recommended that manual tools are used to reduce the risk of inadvertently cutting or damaging the wood pole or its associated stay wire.

If the hedge is in contact with the overhead power line, seek advice from the electricity network operator.

Tree maintenance

It is important to note that such activities often occur in proximity to overhead power lines and wooden poles, which introduce additional risks that require careful control and often need to be carried out by specially trained and competent arborists.

If there are any branches overhanging or within 1 metre of the overhead power lines and wood poles, the electricity network operator must be consulted before any pruning work is attempted.

You should engage a specialist, competent arborist to manage the work safely when planning felling operations within twice the height of the tree from an overhead power line or any diseased, decayed or dead trees within that zone.

The electricity network operator must also be consulted if additional controls are needed to manage the risk, such as making the line dead.

Other activities

There are many other activities that take place on and around farmland that are not included in this document such as shooting, fishing and other sporting and leisure pursuits. It is essential to assess the risk of accidental contact for all such activities.

Where possible all activities should take place at a minimum of 10 metres from overhead line equipment. This distance may need to be increased in certain circumstances; this includes identifying the best places to situate casting points for fishing, or where shooting activities could damage overhead electrical equipment.

If you need any additional advice, please contact the electricity network operator to discuss any necessary precautions or arrangements.

5. Emergency arrangements

Has your machine / vehicle come into contact with an overhead power line?

Yes

Is there a fire or risk of injury?

Yes

If you can, Call 999

Report your location, tell them what has happened and that power lines are involved.

No

Is the machine / vehicle safe to operate?

Yes

Stay in the cab (if safe), lower any raised parts that are controlled from the driving position and/or drive the machine / vehicle clear of the line, as long as neither of these actions risk breaking the line or dragging it to the ground.

No

Stay in the cab if possible.
If you need to evacuate then jump well clear!!

Avoid simultaneous contact with any part of the machine and the ground.

(Electrocution is possible if anyone touches both the machine / vehicle and the ground at the same time).

Move away using 'long leaping strides' until at least 10 metres from the machine / vehicle.

Warn others and restrict all access to area.

(Instruct everyone outside the machine / vehicle not to approach it and not to touch any fallen wires and stay 10 metres clear, even if the line appears dead.)

Contact your local electricity network operator on 105 within GB or 03457 643 643 within Northern Ireland.

Do not exit the cabin or return to the machine / vehicle until given confirmation by the electricity network operator that it is safe to do so.

CALL 105

Wait for electricity network operator personnel to confirm that power is off and safe.
(There is a possibility that the overhead power line will be re-energised at any time.)

6. Height measuring equipment

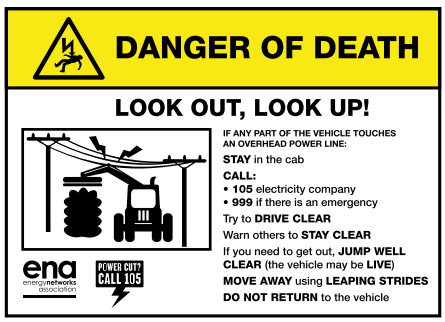
There are various non-contact tools available that allow overhead power line heights to be measured from a safe distance. This includes the Suparule which is commonly used by many electricity network operators.

The *'Suparule Cable Height Meter'* is a handheld meter that utilises ultrasonic signals to determine the height of overhead cables.

7. Signage

Signage should be displayed on all electricity network operator poles and pylons that carry overhead power lines to warn of the dangers.

In addition cab stickers can be obtained from the electricity network operators to place inside agricultural machinery to remind operators to 'Look Out, Look Up!' for overhead power lines.

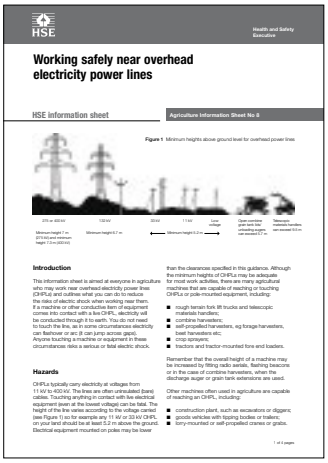


8. Further reading and resources

For further advice related to working near power lines and cables please refer to following guidance documents.

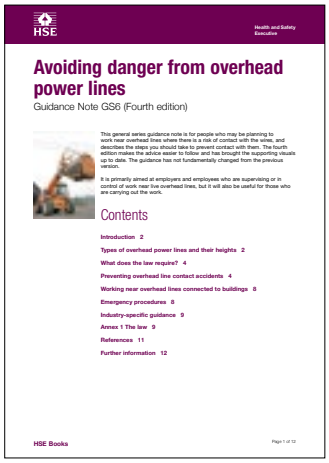
Working safely near overhead electricity power lines

https://www.hse.gov.uk/pubns/ais8.pdf



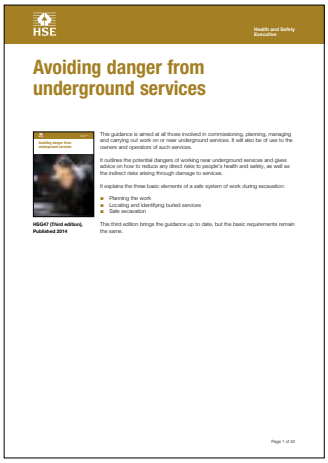
Avoiding danger from overhead power lines

https://www.hse.gov.uk/pubns/gs6.pdf



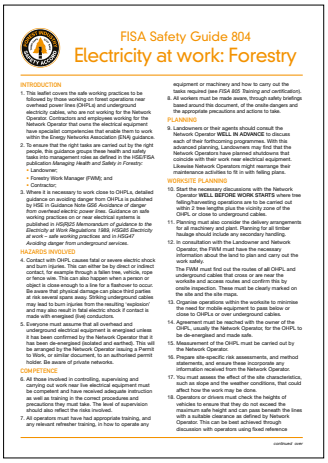
Avoiding danger from underground services

https://www.hse.gov.uk/pubns/priced/hsg47.pdf



FISA Safety Guide 804 Electricity at work: Forestry

https://ukfisa.com/Safety/Safety-Guides/fisa-804



Always remember that overhead power lines can be very dangerous – the general rule is *Look Out, Look Up!*, stay away and stay safe!

For advice, telephone your local electricity network operator on 105 (GB), or 03457 643 643 for (Northern Ireland).

CALL 105

Alternatively log on to ENA website **www.energynetworks.org**

This guidance is published by ENA (Energy Networks Association)