ESB NETWORKS

Farm Safely with Electricity

Stay Safe Stay Clear

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esbnetworks.ie

Introduction

ESB Networks: Empowering Ireland's Agricultural Future

At ESB Networks, we provide electricity to 2.5 million customers, including many in the agricultural sector. We help farmers and rural communities decide how they use, generate, and store energy. Our goal is to build a safe, smart and secure electricity network that supports Ireland's clean energy objectives and meets the unique needs of the agricultural community.

Safety is at the heart of everything we do. We are dedicated to maintaining a secure electricity network that protects our customers, their properties, and their livelihoods.

Farming: A High-Risk Occupation

Farming is considered one of the most dangerous sectors in Ireland. According to the Health and Safety Authority (HSA), farming has a higher risk of accidents and fatalities compared to other occupations. Farmers face various hazards, including the potential to come into contact with overhead electricity wires and underground cables. This makes it crucial for farmers to understand and follow these safety guidelines and practices to protect themselves and others on the farm.

This safety guidance is intended to help you identify and assess the risks posed by the electricity network and to help you stay safe while carrying out agricultural tasks and activities on farms.

Caution: Always assume the electricity network is live.
In an emergency contact ESB Networks immediately.
24/7 Emergency Number: 1800 372 999

Important Note for Construction Work

This guidance does not cover construction work on farms. Where construction works are taking place on a farm you will need to ensure that you comply with and follow the requirements of both the HSA approved ESB Networks Code of Practice for Avoiding Danger from Overhead Electricity Lines and the HSA Code of Practice for Avoiding Danger from Underground Services.

You can download these codes of practice from the HSA website or the ESB Networks website.

If you prefer a printed copy, you can get one for free from ESB Networks by calling 1800 372 757.

While these documents are primarily intended for use on construction projects, they contain useful safety advice and guidance for working in the presence of overhead and underground electrical wires and cables.

Hazards of Electricity

Electricity is delivered across the country using both overhead wires and underground cables. It is a powerful and versatile source of energy, but it can be very dangerous and can cause serious injuries or even death unless we use safe systems of work. Here are some key points to remember:

- **Direct and Indirect Contact:** You can be exposed to live electricity by touching it directly or indirectly. Both can cause severe electric shocks and burns.
- **Overhead Electricity Lines:** Working too close to or touching these lines can be fatal. High voltage electricity can jump across gaps. The safe distances for each voltage level are provided in Table 1 and Table 2.
- **Underground Cables:** Hitting these cables while digging can cause explosions, leading to burns or electric shocks.
- **Ignition Source:** Electricity can start fires.

Stay Safe: Know where overhead lines and underground cables are located on your farm.

110 kV poleset with earth wire

110 kV poleset

110 kV pylon

ESB Networks Dial Before You Dig Service

Before starting any work on your farm, it is crucial to know where the overhead electricity lines and underground cables are located. By knowing where the lines and cables are on your farm, having mapping data to hand and by following the safety guidance below, you can ensure a safer working environment for you, your family and any contractors carrying out work on your farm.

Get Your Free Map

You can get a map showing the main overhead electricity lines and underground cables on your property for free from ESB Networks.

Simply call **1800 372 757** or email the following information to **dig@esb.ie**

- Full address of the site location, including Eircode
- Geographic coordinates of the site location
- Map of the area (a screenshot from Google Maps works)
- Your name and email address

Receive Your Map

After you send your request, you will receive your map within ten working days.

220 kV pylon

400 kV pylon

110 kV cable sealing end mast

Figure 1: Electricity Pole Danger Sign

Working Safely Near Overhead Electricity Lines

ESB Networks will work with you to determine the best approach to minimising the hazard and risk. However, ultimate responsibility for the work on your farm resides with you.

To ensure safe working in all cases, before work begins, you should:

- verify the line voltage with ESB Networks;
  Always contact ESB Networks for confirmation of the actual voltage levels and line heights for specific overhead electricity lines.
- determine the hazard zone; and
- determine the exclusion zone.

What is the Hazard Zone?

Keeping a safe distance from overhead electricity lines is crucial to avoid accidents. The hazard zone is a lateral area near an overhead electricity line that defines the Minimum Safe Distances for Plant and Machinery to operate safely where Overhead Wires are present.

The Hazard zone depends on the voltage of the electricity line. The hazard zones for plant and machinery operating near overhead electricity lines are:

- **For 110 kV and above:** 10 metres plus the falling distance of a fully extended boom.
- **For Low Voltage (LV), 10 kV, 20 kV, and 38 kV:** 6 metres plus the falling distance of a fully extended boom.

Table 1: Hazard Zone minimum distances

Nominal phase-to-phase voltage of overhead line	Minimum horizontal distance in metres
LV, 10 kV, 20 kV and 38 kV	6.0
110 kV, 220 kV, 400 kV (and other voltages in this range)	10.0

These distances help ensure safety by preventing accidental contact with overhead lines.

Figure 2: Hazard Zone

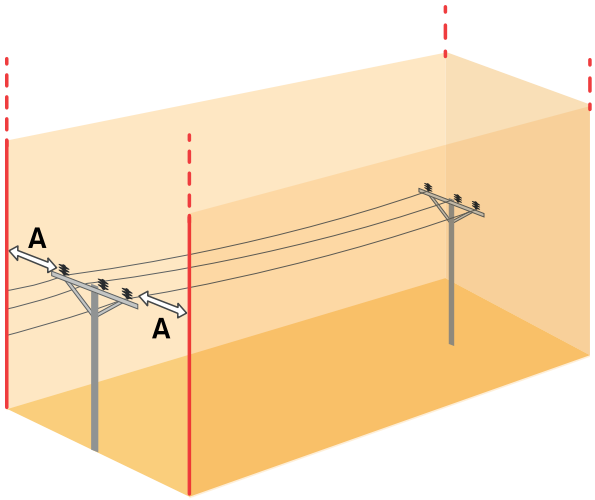
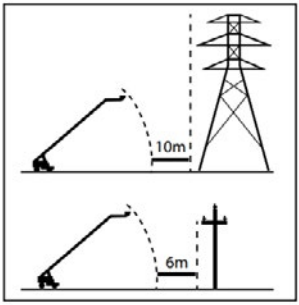


Figure 3: Plant and machinery minimum safe distance



The diagram illustrates the two minimum safe distances

- 10 m plus falling distance of fully extended boom (for 110 kV and above).
- 6 m plus falling distance of fully extended boom (for LV, 10 kV, 20 kV and 38 kV).

A site-specific risk assessment and work method statement shall be prepared before deciding what work can be done in the hazard zone.
The risk assessment and work method statement shall cover the following:

- the height of the line, taking into account any possible sag.
- the maximum potential height that the equipment can reach, ignoring any mechanical, electronic or electromechanical height limiters that may be fitted to the equipment.
- the possible effect of varying or changing ground levels within the hazard zone on the height of the line.

What is an Exclusion Zone?

An exclusion zone is an area around a live overhead electricity line that must never be breached. This is to prevent electrical arcing or flashover, which can be extremely dangerous.

Why is it Important?

Entering the exclusion zone can lead to serious accidents, including electrical shocks or fires. It is crucial to always stay outside this zone to ensure safety.

Determining the Exclusion Zone

The size of the exclusion zone depends on the voltage of the overhead electricity line. Here are the minimum distances you must maintain:

Always contact ESB Networks for confirmation of the actual voltage levels and line heights for specific overhead electricity lines.

*Table 2: Exclusion Zones in metres (which must **NEVER** be breached)*

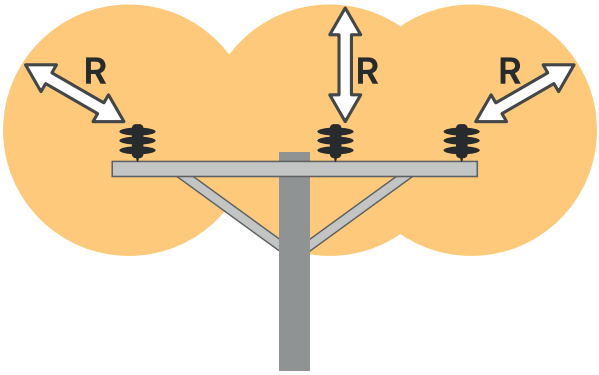
Nominal Phase-to-Phase Voltage of Overhead Line	Exclusion Zone (R) in Metres
Insulated LV conductors (insulation must be verified by the network owner/operator before any work starts)	1.0
Un-insulated LV conductors	3.0
10 kV, 20 kV, and 38 kV	3.0
110 kV	4.5
220 kV	6.0
400 kV	8.0

Visual Guide

Figure 4 shows the exclusion zone around three overhead electricity lines on a single pole. This visual guide helps you understand the safe distances you need to maintain.

If works do not involve plant and machinery, equipment or activities that could breach the exclusion zone, you do not have to further consult with ESB Networks after you have verified the voltage, as outlined above. If in doubt about anything, consult ESB Networks.

Figure 4: Exclusion Zone



Identifying Electrical Risks on Your Farm

One of the biggest risks is not noticing overhead electricity lines. They are visible, but if you see them every day, you might stop paying attention to them. Understanding these hazards helps you assess and document the risks in your HSA Farm Safety Code of Practice Risk Assessment Document.

Effective communication and awareness are key to maintaining a safe working environment. Ensure that all agricultural contractors and other groups working on the farm are fully aware of the risks associated with overhead lines and the required safety measures. If you have any other specific concerns or need further advice, feel free to ask ESB Networks by calling 1800 372 757.

Main Electrical Risks on the Farm

1. Fallen Wires

- **Risk:** Fallen wires can be extremely dangerous and may still be live.
- **Safety Tip:** Staying clear of fallen wires and reporting them promptly can save lives. Never touch or go near fallen wires. Report them immediately to ESB Networks at **1800 372 999**.

2. Machinery and High Loads

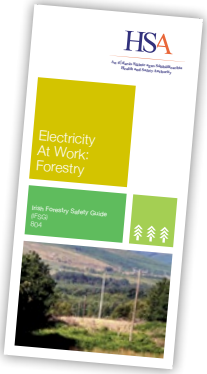
- **Risk:** Machinery and high loads can accidentally come into contact with overhead lines.
- **Safety Tips:**
- ***Look Up and Look Out:*** Always be aware of your surroundings and the location of overhead electricity lines.
- ***Plan Access Routes:*** Choose routes that avoid or minimize movement under overhead lines.
- ***Know Your Equipment's Height:*** Be aware of the full height of your machinery when fully extended. Compare these heights with the safe clearances marked on your farm map to identify risk areas.
- ***Maintain Safe Distance:*** Keep all machinery and accessories away from overhead electricity lines to prevent accidental contact. Refer to Table 1 for the hazard zone and Table 2 for the exclusion zone distances for each voltage level.

- ***Communicate Risks:*** Ensure that all agricultural contractors and other groups working on the farm are fully aware of the risks associated with overhead lines and the safety measures in place.
- ***Be Careful with Liquids:*** When using irrigating equipment, rain guns, sprinklers, or spreading slurry, be cautious. Liquid hitting overhead wires or breaching the exclusion zone can cause electrocution.
- ***Stay Wires:*** Be aware of stay wires and avoid striking them to prevent damage to both machinery and the electricity network.
- ***Never breach the exclusion zone:*** Do not raise wide spray booms, portable grain augers, tipper lorries, cranes, ladders, scaffolding, or telescopic handlers near overhead wires where there is a risk that it may breach the exclusion zone.
- ***Do not raise the level of ground*** underneath overhead electricity lines.
- ***Store materials or bales outside the hazard zone*** to avoid any risk of contact.
- ***Consult ESB Networks:*** If high machinery frequently operates near overhead lines, consider consulting ESB Networks about options.
- ***GPS guidance systems:*** If using GPS guidance systems, please ensure that accurate electricity pole and tower location information is used.

3. Timber and Hedge Cutting

- **Risk:** Cutting trees or hedges near overhead lines can lead to accidental contact.
- **Safety Tip:** Keep outside the hazard zone when cutting. If necessary, contact ESB Networks for advice. Refer to Table 1 for hazard zone distances for each voltage level.
- ***Do not cut trees or hedges within the hazard zone without first contacting ESB Networks.*** Apply for a free assessment through your ESB Networks Online Account for guidance. To ensure your safety, we may need to temporarily disconnect the electricity supply before cutting begins.
- If cutting down trees outside the hazard zone, ***maintain a safe distance of double the tree's height*** on either side of any electricity poles or overhead wires. This will ensure a falling tree will keep outside the hazard zone.
- ***Remember that electricity can jump gaps***, meaning you don't need to come into direct contact with a live wire to be seriously injured or killed. Never breach the exclusion zone.

- ***Always consult a tree surgeon/professional, as cutting trees and hedges is a dangerous activity.***
- Before you begin any cutting, ***establish a hazard zone appropriate to the voltage level*** around any electricity poles or support wires. Do not work within this hazard zone.
- ***Be extremely cautious*** when cutting vegetation from a height as branches may fall ***on*** top of wires.
- ***Always carry out tree-cutting work in daylight.***
- ***Emergency Number:*** In case of any accidental contact with overhead lines, immediately call ESB Networks emergency number at ***1800 372 999***.
- ***For forestry works please consult the HSA Guidance document – Electricity At Work: Forestry, Irish Forestry Safety Guide (IFSG) 804.***



4. Electric Fences and Metallic Fences

- **Risk:** Overhead electricity wires can sometimes end up on the ground, resting on ditches, or across electric fence wire. This means that anything metallic could be electrified and, therefore, dangerous to touch.
- **Safety Tip:** Where practical, ensure fences are installed away from overhead lines and regularly check for any potential contact points.
- Always assume that electricity wires are live.
- Never touch or handle fallen electricity wires.
- Avoid Fixing to Poles: Never fix gates or electric fence wire to ESB Networks poles.

5. Farm Electrical Installations and Hand Tools

- **Risk:** Poorly installed or maintained electrical systems and tools can be hazardous.
- **Safety Tips:**
  - ***Farm Wiring Installation:*** Ensure all wiring is done to standards by a registered electrician. Regularly assess and maintain your electrical installations. Make sure all electrical hand tools are maintained and professionally repaired.
  - ***Generator Use:*** If you have a generator, make sure it has a changeover switch installed by a professional to safely switch between mains and generator power.

Our Free Shrouding Service

- **Risk:** Working within the hazard zone of live LV overhead lines without proper controls may be dangerous.
- **Safety Tip:** Use the shrouding service provided by ESB Networks to cover live low voltage lines and reduce the risk of accidental contact during work. Contact **1800 372 757** to arrange.

In the Event of an Emergency

- ***Emergency Number:***
  ESB Networks operates a 24/7, 365-day-a-year emergency number – **1800 372 999**.
  Save this number in your phone and ensure all contractors working on your farm do the same before starting work.

If the worst happens, follow these steps to stay safe:

- **Risk:**
  If a machine or its attachments come into contact with an overhead wire, it could be fatal for anyone who touches the machine. Do not rely on rubber tyres or rubber-soled boots for protection – they will not insulate against a high-voltage shock.

- **Safety Steps:**
  - ***Step 1: Keep Clear***
    The driver of a vehicle that comes into contact with overhead wires will usually remain safe in the cab. Other people are at risk if they make simultaneous contact with the vehicle (and anything attached to it) and the ground. Ensure everyone stays at least 10 metres away from the vehicle or fallen wires.
  - ***Step 2: Get Help***
    You, or someone else, should contact ESB Networks' emergency number **1800 372 999** immediately.
  - ***Step 3: Jump Clear***
    If you have to leave the cab, jump well clear so that no simultaneous contact is made between you, the vehicle, and the ground. Land on your feet and do not touch the ground with your hands. Move away at once using short steps or bunny hop with both feet together.
  - ***Step 4: Stay Clear***
    Do not go back to the vehicle, even if you think it is safe to do so. It may still be live. Nobody should approach the vehicle until ESB Networks has confirmed that it is safe.
  - ***Step 5: Safe Operation***
    If the vehicle is not tangled with the overhead wire, reverse away until contact is broken. Do not climb out of the vehicle or attempt to operate the vehicle while standing on the ground outside the vehicle.

Staying vigilant and following these steps can help prevent accidents and ensure a safe working environment. If you have any other questions or need further advice, please contact us on **1800 372 757.**

ESB NETWORKS

Key Farm Safety Messages

1. Watch out for overhead electricity wires
2. Stay clear of electricity poles
3. Always assume that electricity wires are live
4. Never touch fallen wires
5. Never handle stock that may be in contact with electricity wires
6. Display safety stickers on farm machinery to remind everyone to be “electricity safe”
7. In an emergency, call the ESB Networks emergency number **1800 372 999**

Helpful references:

ESB Networks Code of Practice for Avoiding Danger from Overhead Electricity Lines

HSA Code of Practice for Avoiding Danger from Underground Services

HSA Farm Safety Code of Practice Risk Assessment Document

HSA Guidelines for Safe Working Near Overhead Electricity Lines in Agriculture