



NETWORKS

Serving all electricity customers

# FARM SAFELY WITH ELECTRICITY

IT MAKES SENSE TO CHECK

[esbnetworks.ie](http://esbnetworks.ie)



# Minister's Foreword

Farm safety is a critical issue facing farming today and is something that I am particularly concerned about. Statistics show that accidents on farms cause more workplace deaths than all other occupations combined. There have been over 25% more fatal farm accidents, so far in 2014, than in the entirety of 2013. Farming is the most dangerous occupation in the country. Even minor accidents can cost a lot of time and money.

While the Health and Safety Authority has primary responsibility for Health and Safety, it is something that every representative organisation and other body involved in farming should be mindful of at all times. I am delighted to see ESB Networks Ltd., taking a proactive role with the production of this useful booklet about electrical safety on farms. I would strongly encourage all people involved in farming to read the booklet and to work through the safety checklist and self-rating at the end of the booklet.

The use of correctly installed and maintained electrical systems will help to reduce the number of farm accidents that occur in connection with electricity. Additionally, great care should be taken when working near overhead power lines as contacts with the lines have caused fatalities. You should always know where overhead power lines are when operating tall machines such as harvesters. It is important for everyone to continually



highlight the need for farmers to think Safety First in all tasks they perform, no matter the pressure. Simple behavioural changes are all that it takes to save lives. Taking those few extra minutes may save your life or that of a loved one.

Farm Safely.



**Simon Coveney**  
Minister for Agriculture,  
Food and the Marine

# Introduction by Managing Director, ESB Networks

I am delighted to introduce this booklet on electrical safety on farms, and to acknowledge the support of the Farm Safety Partnership.

Electricity is essential for our economy and is so much part of modern living that we can often take it for granted. Electricity is a powerful and versatile source of energy but it can be dangerous unless we use it safely. Serious accidents have occurred on farms when machinery has come too close to overhead power lines and where the electrical installation has become faulty.

On the farm it is very important to be aware of potential dangers and to always make safety a priority. This booklet outlines seven potential electrical hazards to be aware of around your farm. The four key safety messages and self rating checklist will help you to plan ahead and keep you, your family and your livestock safe.

Safety is a core value for ESB Networks and we are committed to providing a safe and secure electricity infrastructure for all of our 2.4 million electricity customers in Ireland. Over the last ten years we have invested €6bn to refurbish and upgrade our electricity network. We continue to develop and use new technologies to improve the quality and reliability of the electricity supply.

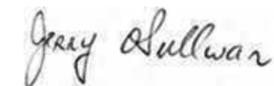
As part of our continuing commitment to electrical safety, we implement public safety information and awareness programmes to highlight the danger of coming into



contact with overhead electricity wires and underground cables.

The booklet is part of our commitment to providing leadership in safety. It provides some practical guidance on farming safely with electricity.

Yours sincerely,



**Jerry O'Sullivan**  
Managing Director, ESB Networks Ltd.

# Electrical safety on farms – a critical issue



When using farm machinery be aware of overhead lines.

## Electrical Accidents on Irish Farms

### SITUATIONS INVOLVED IN PAST ELECTRICAL ACCIDENTS:

- Welding in a farm shed.
- Electric fence connected to 230 Volts ac rather than through the electric fence unit.
- Milking machine became live due to faulty wiring.
- A silage harvester made contact with a 10,000 volt (10kV) overhead power line.
- Cutting timber close to a 20,00 volt (20kV) overhead power line.
- Power washing a cow shed using an extension lead.

Working near overhead power lines and having an unsafe electrical installation are the main causes of electrical fatalities on farms. There have been 67 deaths from electrocution due to accidental contact with 'live' electricity between 1995 and 2013.

### SITUATIONS WHERE LIVESTOCK IS LOST AND FARM BUILDING DESTROYED:

- Thousands of pigs killed and three sheds destroyed, in a fire caused by an electrical fault.
- Six in-calf pedigree heifers electrocuted inside a shed.

## Have you identified all the risks and included them in your farm safety statement?

These accidents are foreseeable. By identifying these electrical risks and working safely, they can be prevented.

# What are the risks?

## Working near overhead power lines

Forage harvesters, combine harvesters, tipping trailers, and moving high loads where there are overhead power lines are major risks. Typical farm machinery can easily reach an overhead power line. Ensure that poles, stay-wires and protective earth wires (attached to poles) are not damaged during farming work.

### PROBLEMS ARISE WITH:

- Damaged wiring.
- Incorrect electrical fittings.
- Lack of maintenance.
- Electrical faults on motors.
- Poor quality additions to wiring.

## Unsafe electrical installations cause problems

The working environment for electrical equipment on farms is much more onerous than in a domestic situation. The presence of water especially, and dust – as well as the greater likelihood of physical damage from animals and vehicles – can increase the risk, if incorrect electrical fittings are used.

## Make sure the electrical installation is to the required standard

Your registered electrical contractor will be familiar with these special requirements.

# ELECTRICAL SAFETY

## What to watch out for!



Network technician repairing fallen wires after a storm.

### 1. Fallen electricity wires – keep away

Bad weather (such as high winds, ice and snow, freezing rain) fallen timber or other windblown debris can bring down overhead electricity wires.

Every year valuable cattle and sheep are electrocuted after storm damage when trees fall on overhead lines. Do not put yourself at risk when trying to intervene.

Always assume that fallen or low-lying overhead wires are live until ESB Networks informs you that the power has been switched off and made safe. Even if the wires appear to be safe, it may become live.

#### Do:

- Keep away from fallen electricity wires.
- Contact ESB Networks immediately at 1850 372 999.

#### Don't:

- Never touch or come near fallen electricity wires.
- Never assume it is safe to handle fallen wires.



Tom Ryan, Teagasc Farm Buildings Specialist, provides example of best wiring practice in a farm work shop.

### 2. Wiring installation – check it out

It makes sense to maintain the electrical installation and have it checked regularly. It makes sense to upgrade and have the safest equipment possible.

Electrical equipment such as lamps and motors generate heat, so it is important not to locate flammable materials too close.

Handyman-type installations and temporary repairs are the cause of many serious electrical accidents on farms. Damp or dusty locations increase the potential for electric shock.

Installing a Residential Current Device (RCD) tripswitch provides protection against electrical shock and is one of the most significant safety measures you can take.

#### Do:

- Always use a registered electrical contractor.
- Install a Residual Current Device (RCD) and test it regularly.
- Have your installation checked regularly and maintained.
- Use corrosion proof fittings, sealed against dust and water in milking parlours, feed preparation areas and livestock sheds.
- Take particular care when power washing near electrical equipment.
- Use the correct outdoor fittings to the IP standard.

#### Don't:

- Never overload electrical equipment.
- Do not neglect the maintenance of electric motors. Accumulated dust leads to overheating and fires.
- Do not neglect the maintenance of heaters such as infra-red lamps.
- Never store flammable materials near electrical equipment.

### 3. Portable tools

Portable tools are one of the most frequent causes of electrical accidents on farms.

**Do:**

- Use a plug-in Residual Current Device (RCD) for portable tools.
- Replace damaged equipment immediately.
- Carefully inspect for damage, paying particular attention to flexes and replace immediately.
- Fully un-coil any extension lead to prevent over heating.

**Don't:**

- Never use equipment which is damaged.



Distribution board with RCD.



Bonding grid in the floor of milking parlours

### 4. Equipotential bonding – solve your stray voltage problem

Stray electricity arises because of poor electrical connections, between all exposed metal work and solid earth. This is caused by corroded switches, defective wiring, frayed insulation, faulty equipment.

**Do:**

- Install a metal equipotential bonding grid in the floor of milking parlours and other livestock housing.
- Double-up the connections from floor grid to main bond structure of parlour.
- Regularly check all earth connections for damage and have them repaired.

**Don't:**

- Do not take short cuts with bonding.
- Never put off doing electrical repairs.



Arthur Byrne, Public Safety Manager, ESB Networks discussing the dangers of a damaged support structure on overhead networks, with Charlie Gallagher, Chief Executive, IHFA.

### 5. Electric fences – avoid creating a hazard

Incorrect installation gives rise to electric shocks on the metalwork of dairies and sheds. Where possible, locate the fence wire well away from the overhead power line.

**Do:**

- Position the fence wire at least 1-2 meters from ESB pole and at right angles to overhead power line.
- Always mount the electric fence wire on its own supports.

**Don't:**

- Do not erect electric fences closer than 6 metres (20 feet) to overhead power lines.
- Never support the electric fence using an ESB pole.
- Never use an ESB power line to support an electric fence crossing a road.

### 6. Standby Generators – special rules apply

Stand-by generators are a convenient source of electricity in emergency situations when the ESB Networks supply is unavailable.

Special rules apply to the installation of stand-by generators which your registered electrical contractor will be familiar with.

**Do:**

- Always ensure a proper change-over switch is installed at the main distribution board.
- Always use a registered electrical contractor.
- Always notify ESB Networks of the presence of a stand-by generator.

**Don't:**

- Never use a temporary generator without a change over switch.
- Never plug a portable generator into a socket.



Never use a temporary generator without a change over switch.



Be careful of overhead lines when spreading slurry.

### 7. Machinery and high loads

Making contact with overhead electricity wires or even coming close puts you at serious risk of injury or death from electrocution. Electricity from power lines can jump gaps when machinery is close by, so you don't need to make contact to be seriously injured. The majority of accidents occur because of failure to notice the overhead power lines and to take sensible precautions.

Cutting hedges and trees can be a high risk activity. Electricity wires that run parallel to hedges or along the edge of forests blend into the scenery.

#### Do:

- Look around you and it could save your life.
- Take precautions to ensure equipment does not come into contact with overhead power lines.
- Be careful using irrigating equipment, rain guns and sprinklers or spreading slurry. You could be electrocuted if liquid hits the overhead electricity power line.
- Be aware of stay wires and take steps to avoid striking them, as damage caused to both machinery and the electricity network can be substantial.
- Know that portable grain augers are a particular risk due to their operating height.

#### Don't:

- Do not work too near to overhead power lines.
- Do not raise wide spray booms, tipper lorries, cranes, ladders, scaffolding or telescopic handlers near overhead power lines.

ESB Networks Emergency Number:  
 In case of emergency  
**phone 1850 372 999**  
 (24 hour/7 day service)  
[esbnetworks.ie](http://esbnetworks.ie)



# LOOK AROUND YOU, IT COULD SAVE YOUR LIFE

Making contact with overhead electricity wires or even coming close puts you at serious risk of injury or death from electrocution.

Avoid serious injury on the farm, or on the road, never take risks near electricity wires when behind the wheel.

- Slurry spreaders
- Silage harvesters
- Tractors with front loaders
- Trailers with high loads
- Tall machinery

In case of emergency phone **1850 372 999** (24 hour/7 day service)

[www.esbnetworks.ie](http://www.esbnetworks.ie)



## If the Worst Happens – Take these steps and stay safe:

If a machine or its attachments come into contact with an overhead line, 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. Tyres can burst into flames and boots can be destroyed. These are the steps that should be taken in the event of a hit on an overhead power line.

### Step 1: Keep Clear

- The driver of a vehicle that comes into contact with overhead lines will usually remain safe in the cab of the vehicle. Other people are at risk if they make simultaneous contact with the vehicle (and anything attached to it) and the ground.

### Step 2: Get Help

- You, or someone else, should contact ESB Networks' emergency number (1850 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 to do so.

### Step 5: Safe Operation

- If the vehicle is not tangled with the overhead line, 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.



**EXTREME DANGER:**  
NEVER MAKE CONTACT  
between machine and ground



If risk increases, jump clear  
and keep others away  
**DO NOT STEP DOWN**



Stay calm, disengage gently,  
back away if possible, call  
emergency number  
**STAY IN THE CAB**

# LOOK AROUND YOU, IT COULD SAVE YOUR LIFE

Making contact with overhead electricity wires or even coming close puts you at serious risk of injury or death from electrocution.

Avoid serious injury on the farm, or on the road, never take risks near electricity wires when behind the wheel.

- Silage harvesters
- Tractors with front loaders
- Trailers with high loads
- Tall machinery

In case of emergency phone **1850 372 999** (24 hour/7 day service)

[www.esbnetworks.ie](http://www.esbnetworks.ie)



## CONTACT INFORMATION AND SAFETY MATERIAL

### ESB Networks

Supply Interruptions and Emergencies, Reporting dangerous situations or damage to the electricity overhead network and poles.  
Tel 1850 372 999  
Website: [www.esb/networks](http://www.esb/networks)

### CER

Commission for Energy Regulation,  
Plaza House,  
Belgard Road,  
Tallaght,  
Dublin, 24.  
Tel: 01 4000800  
Website: [www.cer.ie](http://www.cer.ie)

### ECSSA

Electrical Contractors Safety and Standards Association,  
Coolmore, Park Road, Killarney,  
Co. Kerry.  
Tel: 064 6677266  
Website: [www.ecssa.ie](http://www.ecssa.ie)

### RECI

Register of Electrical Contractors of Ireland,  
Unit K9, KCR Industrial Estate,  
Dublin 12.  
Tel 01 623 9901  
Website: [www.reci.ie](http://www.reci.ie)

### ETCI

Electro Technical Council of Ireland, Unit H12,  
Centre Point Business Park,  
Oak Road, Dublin 12.  
Tel 01 429 0088.  
Website: [www.etcii.ie](http://www.etcii.ie)

### H.S.A.

Health and Safety Authority,  
The Metropolitan Building,  
James Joyce Street, Dublin 1.  
Tel: LoCall: 1890 289 389  
Website: [www.hsa.ie](http://www.hsa.ie)

### IFA

Irish Farm Centre,  
Bluebell,  
Dublin 12.  
Tel: +353 (1) 4500266  
Website: [www.ifa.ie](http://www.ifa.ie)

### Teagasc

Oak Park,  
Carlow  
Tel: +353 59 917 0200  
Website: [www.teagasc.ie](http://www.teagasc.ie)

### ICMSA

John Feely House,  
Dublin Road,  
Limerick  
Tel: +353 61 314532/314677  
Website: [www.icmsa.ie](http://www.icmsa.ie)

### Macra Na Feirme

Irish Farm Centre,  
Bluebell,  
Dublin 12,  
Tel: 01 426 8900  
Website: [www.macra.ie](http://www.macra.ie)

### ICSA

ICSA National Office,  
3 Gandon Court,  
The Fairgeen,  
Portlaoise  
Tel: +353 57 8662120  
Website: [www.icsaireland.ie](http://www.icsaireland.ie)

### ICA

58 Merrion Road,  
Dublin 4,  
Tel: 01 668 0002  
Website: [www.ica.ie](http://www.ica.ie)

## AVAILABLE RESOURCES:

ESB networks provides a range of safety materials including:

- Safety DVD's
- CAB Stickers
- Safety Key Ring Keyring
- Press Ads

Please also refer to the Health and Safety Authority Guidelines for Safe Working Near Overhead Electricity Lines in Agriculture.

Please contact us for materials at 1850 372 757.

# SELF RATING

COMPLETE THIS ELECTRICAL SELF-RATING FOR YOUR FARM

How does your farm rate when you check it out against these points?

1. Which fields, yards and buildings are near to overhead electricity wires?  
\_\_\_\_\_
2. Has your electrical installation and wiring been checked within the past 12 months?  
\_\_\_\_\_
3. What are the electrical risks on your farm?  
\_\_\_\_\_
4. What safety precautions do you take when using high machinery and loads where there are overhead electricity wires?  
\_\_\_\_\_
5. Have you tested your RCD in the past 6 months?  
\_\_\_\_\_
6. Where have you displayed electrical safety warning stickers on your farm?  
\_\_\_\_\_
7. Do you plug in a portable RCD when using portable electrical equipment?  
\_\_\_\_\_
8. Have you recorded the ESB Networks Emergency number in your mobile phone?  
\_\_\_\_\_

This is my commitment to farm safely with electricity:

\_\_\_\_\_  
Signed

\_\_\_\_\_  
Address

\_\_\_\_\_  
Date

# KEY FARM SAFETY MESSAGES

1. Watch out for overhead electricity wires
2. Have your electrical installation checked regularly
3. Have an RCD fitted and test that it works
4. Complete the electrical self rating checklist

“Safety is a core value for ESB Networks and we are committed to influencing the public to act safely near electricity.”

**Jerry O’Sullivan, Managing Director, ESB Networks Ltd.**

