

Backhoes and excavators

Safe use near underground
and overhead powerlines

**Don't just look down,
look up and live!**

**Creating a safer state
with electricity and gas**

Digging near underground and overhead powerlines

All powerlines are dangerous, including covered powerlines. All have the potential to cause death or serious injury.

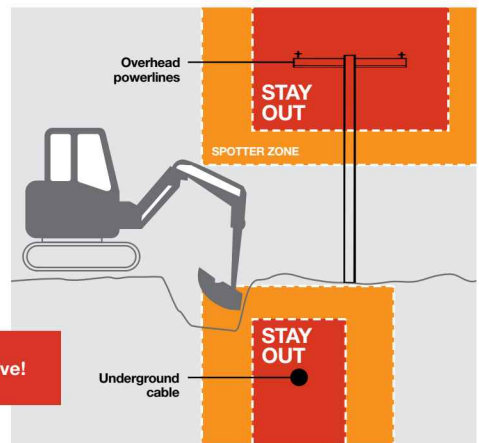
If your plant gets too close to powerlines it can cause electric shock or damage, even without touching the line.

Backhoes and excavators continue to hit powerlines every week causing serious injury and property damage. This often happens when traversing, moving to site, loading or unloading - not only when digging.

Five Ps of safe excavation

1. **Plan** your work before you start.
2. **Prepare** to safely work on site.
3. **Pot-hole** to confirm the location of underground powerlines.
4. **Protect** against damage to powerlines by establishing site controls.
5. **Proceed** to excavate safely.

Don't just look down, look up and live!



Plan

Plan ahead. Lodge your Dial Before You Dig (DBYD) enquiry well before you start any excavation. This will ensure you have the correct information and you can start to put appropriate safety measures in place.

- » Lodge a DBYD enquiry (1100.com.au) to get plans of the underground assets – this is a free service. It is the law to do so before excavating deeper than 300mm.
- » Review the DBYD plans and confirm that the work area will remain at least:
 - › 3m from any underground electrical cables with a voltage greater than 66,000 volts (66kV); or
 - › 2m from all other underground cables 66kV volts or less.

Where these distances cannot be met, contact the power company for further advice. To do the work safely a No Go Zone assessment and Permit to Work (PTW) may be required.

Some plans contain mandatory requirements to contact the utility owner before any excavation works proceed. If unsure, contact the utility owner before starting work.



Some DBYD plans and notices contain mandatory requirements to contact the utility owner before any excavation works proceed. If unsure, contact the utility owner before starting work.



Always check for overhead powerlines at the work site.

This includes powerlines along traversing routes, loading/unloading areas and excavation areas.



You must not excavate or bore underneath underground powerlines unless you have written permission from the relevant Power Company.

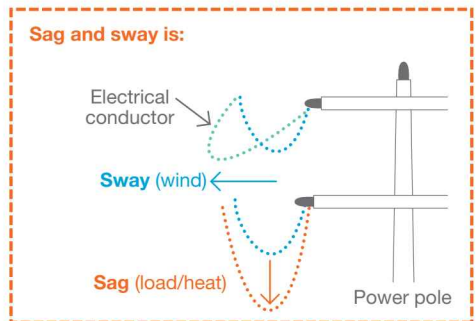
Prepare

- » Visit the work site and understand what hazards you will be dealing with e.g. overhead powerlines, danger signage, electricity pits, power poles, marker posts and meter enclosures etc.
- » If there are overhead powerlines near the worksite, steps must be taken to ensure safety. For any work that comes within 6.4m of a powerline, No Go Zone requirements must be followed. For more, visit esv.vic.gov.au/no-go-zones
- » Consider engaging a DBYD Certified Locator (dbydlocator.com) to identify and mark out the location of underground electrical cables. The utility owner may still need to be contacted prior to undertaking any locating works.
- » Understand the backhoe or excavator capabilities including maximum height and reach. If your equipment is not suitable, consider alternatives e.g. smaller or different machine, non-destructive digging, etc.



Did you know?

Powerlines can come closer to the ground (sag) or swing when it is windy (sway) by up to 3m and even more on hot days.





TIP: Physically locate underground electrical cables by pot-holing using hydro-excavation or other non-destructive digging techniques.

Photo: IPWEA Australasia

Pot-hole

Before excavating, physically locate all underground electric cables to prove their location by pot-holing. This is important as DBYD plans are not always accurate. Always adhere to the asset owner's specified requirements described on the DBYD plan and/or information pack.

- » Prior to pot-holing to prove the location of the electrical cable, contact the power company that owns the cables to obtain a permit to work.
- » Non-destructive digging techniques must be used to visually confirm and record the depth and location of underground electrical cables at regular intervals when they are within the excavation area.
- » Do not expect that underground electrical cable locations will be buried with warning indicators. Cable installations may be marked with warning tape, conduits, concrete, plastic cover slabs or not marked at all.
- » Do not proceed until all underground cables shown on the drawings are located. If you cannot locate the cables on the drawings or if you find cables that aren't shown on drawings, contact the relevant power company.

Protect

- » Protect against inadvertent damage to cables by establishing site controls to minimise the risk.
- » Make sure that all persons working on site know the location of all powerlines and how the work will be carried out.
- » Follow all requirements of any permit to work. These requirements must be communicated to all workers on site.
- » Where required, erect barriers and mark the location of the underground and overhead powerlines.

Proceed

Proceed with your excavation only after you have completed all steps above.

When excavating:

- » Use a registered spotter when working in the spotter zone to ensure clearances from overhead and underground powerlines are maintained. For more on registered spotters, visit ESV's website.
- » Follow all requirements on the Permit to Work.

No Go Zone rules

The No Go Zone guidelines describe minimum safety requirements for doing work near overhead and underground powerlines. Key to these guidelines is the requirement to maintain clearances from powerlines. You can find out more about No Go Zones here: esv.vic.gov.au/technical-information/electrical-installations-and-infrastructure/no-go-zones/

Read more via the WorkSafe guidebook: 'Using powered mobile plant near overhead assets' available at worksafe.vic.gov.au

Checklist: Before you start using a backhoe near underground or overhead powerlines.

Have you...	Yes
Checked what training or competency is required?	<input type="checkbox"/>
Read and understood the No Go Zone guidelines?	<input type="checkbox"/>
Read and understood electrical spotter requirements and considered spotter's training?	<input type="checkbox"/>
Contacted DBYD (underground) and the relevant power company (underground and overhead), if required?	<input type="checkbox"/>
Completed a Safe Work Method Statement (SWMS), identified potential hazards and nominated risk controls?	<input type="checkbox"/>

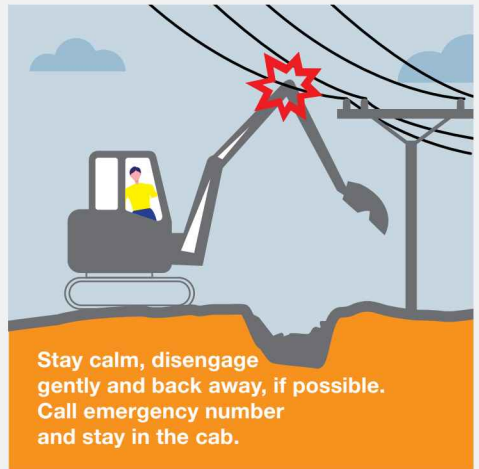
Once you check YES to every requirement above, you are ready to start using your backhoe/excavator safely.



Attach ESV's NGZ stickers on the dashboard of high vehicles or near the controls of machinery as a reminder of the No Go Zones. **Place your free order at esv.vic.gov.au/merchandise**

What to do if you hit an overhead or underground powerline?

- » If anyone is injured or there is an immediate risk, call 000.
- » Contact the power company that owns the powerlines at your location.
- » Instruct anyone nearby to stay at least 10m clear from the incident area.
- » If possible, try to operate the machinery to break contact with the powerline.
- » If safe to do so, stay in your vehicle.
 - › If it is not safe (e.g. in case of fire), jump clear from the vehicle – keeping legs and feet close together, landing both feet on the ground at the same time. Then shuffle with both feet staying close together to a distance more than 10m clear from the vehicle. NEVER touch the vehicle and the ground at the same time.
- » Once clear, do not return to the machinery or approach the powerline.
- » Always assume that any powerline is live – even if it is broken and on the ground.





Further information and safety merchandise including stickers and brochures is available at: esv.vic.gov.au/technical-information/electrical-installations-and-infrastructure/no-go-zones/

Dial Before You Dig	1100.com.au
AusNet Services	ausnetservices.com.au 13 17 99
CitiPower	powercor.com.au 13 12 80
Jemena	jemena.com.au 13 16 26
Powercor	powercor.com.au 13 24 12
United Energy	unitedenergy.com.au 13 20 99

www.esv.vic.gov.au
03 9203 9700
info@energysafe.vic.gov.au

Energy Safe Victoria
Level 5, 4 Riverside Quay, Southbank VIC 3006
ISBN: 978-1-925838-36-7 (Online)

