INTRODUCTION
This guide provides practical advice for clients, contractors and workers associated with the collection of waste involving the operation of plant near overhead electrical cables to create a safe working environment.

This guide provides recommendations to assist in the safe collection of waste containers including but not limited to:

- residential waste bins and skips;
- industrial waste bins and skips.

This guide:
- provides specific guidance on managing the risks associated with working near overhead electrical cables;
- also applies to working near overhead assets that conduct electricity, for example transformers that are usually below the conducting cables and, therefore, pose an additional risk to workers;
- enables the principles of hazard identification, risk assessment and control to be integrated into overall health and safety plans;
- applies on any crown, public or private land or roadway; and
- does not apply to waste collection vehicles whilst in transit.

This document provides waste industry specific advice and should be read in conjunction with the general guidance document, ‘Framework for Undertaking Work Near Overhead and Underground Assets’, produced by WorkSafe Victoria.

Acknowledgements
The Utility Safety Committee (USC) comprises representatives of:

- WorkSafe Victoria;
- Office of the Chief Electrical Inspector; and
- Office of Gas Safety.

The aim of the USC is to facilitate the implementation, monitoring and review of guidelines for working safely near utility assets. To assist specific industry sectors, the USC has established relevant Peak Industry Bodies (PIBs).

The USC acknowledges the cooperative contribution of the following member organisations to the Waste PIB in the development of these guidelines. The proactive work of the Victorian Waste Management Association is specifically acknowledged.

LEGISLATIVE AND REGULATORY FRAMEWORK
The main components of the legislative framework that relate to the safety of persons working near overhead electrical assets in Victoria are the Electricity Safety Act 1998 and the Occupational Health & Safety Act 2004.

The Victorian WorkCover Authority (VWA) administers the Occupational Health & Safety (OHS) Act, the OHS (Plant) Regulations, other associated regulations and guidance material. The OHS Act imposes duties on clients, principal contractors and sub-contractors to provide a safe workplace for both workers and other persons, including members of the public who may be exposed to risks arising from the workplace activities.

The OHS (Plant) Regulations place specific duties on employers and all parties involved in the design, manufacture, supply and use of waste vehicles to identify and control any risks arising from these activities.

The Office of the Chief Electrical Inspector (OCEI) administers the Electricity Safety Act, associated regulations and Codes of Practice.

The Electricity Safety (Network Assets) Regulations (1999) prohibit an intrusion into minimum safety clearances surrounding network assets without written permission from the Network Operator. Minimum safety clearances are specified in the following Regulations:

- Regulation 39 – minimum distances between network assets and any timber and flammable material;
- Regulation 40 – minimum distances between parts of vehicles, plant, machinery and water borne vessels to overhead network assets;
- Regulation 43 – minimum distances between persons and conductors of aerial lines of network operators; and
- Regulation 46 – damage or interference with a network asset.
Employers who implement these guidelines are deemed to have met their obligations in regard to the risks arising from working in close proximity to overhead electrical cables.

**WASTE COLLECTIONS**

**Description of the task and risks**

Municipal authorities in conjunction with contractors provide or facilitate the collection of domestic waste on behalf of residents on a regular basis. Private contractors also provide a service to residents and industry on a commercial basis. Except where an estate has been provided with underground services, this work may be undertaken in proximity to overhead electrical power lines, including communication cabling.

In urban areas, the aerial conductors may also include tramway networks adding another layer of complexity to the waste industry.

When undertaking the collection of kerbside waste bins, vehicles specifically designed to provide side loading capability can encroach on a defined No Go Zone incorporating electrical and communications networks. These side loaders have articulated lifting arms that raise and rotate the waste bins, allowing the contents to drop into the vehicle hopper. The design of lifting arms can vary significantly with some arms giving the operator a range of discretionary movements whilst others are designed with a fixed single movement. As such, it may be possible for the vehicles to make contact with overhead low voltage or high voltage cables.

Some municipal authorities may employ a rear loading kerbside waste pickup. These vehicles do not necessarily have the same risk exposure due to the limited heights involved in the lifting of the bins. This type of service may be utilised in the inner urban area.

Commercial waste collection involves a wide range of bin and skip sizes being lifted by a variety of purpose designed vehicles. The vehicles may have an operating envelope exceeding the height of electrical cables in a particular location.

Within the scope of this guide, a worksite may be considered as the location of the waste receptacle, irrespective of whether or not this is on public or private lands.

**Description of the plant and equipment**

Waste pickup involves a continuous process of short duration worksites using waste vehicles that have attachments with known ranges of lateral and vertical movements. Waste vehicles fall within the definition of ‘powered mobile plant’ as defined in the OHS (Plant) Regulations. Types of waste vehicles used for the removal of waste may be generally described as:

- side loader compactors and bin lifting vehicles;
- front loader compactor vehicles;
- hook lift vehicles;
- roll-on/roll-off vehicles;
- tipping trailers;
- Marrell lifting systems fitted to vehicles; and
- rear loader compactors and bin lifting vehicles.

The design envelope for each waste vehicle is the area encompassing all maximum possible movements of the plant and any part of an attached load, **including the bin or skip being lifted**.

In order to develop safe systems of work, as outlined on page 5 of this document, the design envelope of the vehicle must be known.
NO GO ZONES

The No Go Zone on poles extends above and three metres from any overhead electricity line [see Diagram A below].

When operating any plant or equipment for kerbside waste or commercial bin collection, employers must provide a safe system of work to manage the risk of operating near overhead electrical cables. Waste vehicles whose operation involves raising mechanical parts above the transit envelope of the plant pose the greatest risk.

Waste collection may be undertaken where the design envelope of the waste collection vehicle does not come closer than three metres from overhead electrical cable supported on a pole. This is known as the No Go Zone – refer to the diagram below.

No work is to be undertaken if the design envelope of the waste vehicle is able to encroach the No Go Zone, unless the employer implements a safety management system [see page 5] and:

1. obtains permission from the asset owner; or
2. complies at all times with the No Go Zone clearances contained in Tables A and B.

Diagram A: Clearances from overhead electrical cables

Note: Where work is being undertaken near electrical cables on tower lines refer to the ‘Framework for Undertaking Work Near Overhead and Underground Assets’ for further advice.
### NO GO ZONES CONTINUED

#### TABLE A: TYPES OF ASSETS AND LIMITS OF APPROACH

<table>
<thead>
<tr>
<th>TYPES OF OVERHEAD ELECTRICAL AND COMMUNICATIONS ASSETS</th>
<th>MINIMUM CLEARANCES FOR THE DESIGN ENVELOPE OF WASTE VEHICLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulated low voltage electricity conductors</td>
<td>500 mm</td>
</tr>
<tr>
<td>Un-insulated low voltage electricity conductors</td>
<td>1,000 mm</td>
</tr>
<tr>
<td>High voltage electricity conductors up to and including 66kV</td>
<td>2,000 mm</td>
</tr>
<tr>
<td>High voltage electricity conductors above 66kV</td>
<td>6,400 mm</td>
</tr>
<tr>
<td>Communications cabling – broadband and telephony</td>
<td>300 mm</td>
</tr>
</tbody>
</table>

#### TABLE B: FRAMEWORK FOR WASTE VEHICLES WORKING NEAR OVERHEAD ELECTRICAL ASSETS (EXCLUDES ELECTRICAL ASSETS ON TOWERS)

**WASTE VEHICLE DESIGN ENVELOPE**

- **OUTSIDE NO GO ZONE**
  - No Guide Requirements
  - Written Permit & Safe Systems of Work required.

- **NO GO ZONE**
  - Outside Table A Clearances
  - Inside Table A Clearances
  - Safe Systems of Work

Diagram B: Design envelope and limits of approach
SAFETY MANAGEMENT

To ensure a safe workplace for all employees and sub-contractors, employers should develop a safety management system. The basic steps in managing safety in the waste industry include, but are not limited to, the development and implementation of:

- workplace safety plan;
- risk assessment process for the identification and control of risks to the health and safety of persons; and
- documentation of safe work method statements.

Safety plan

A site safety plan is an overall statement of how the employer intends to manage safety and should include:

- scope of works;
- process for the management of safety
  Note: This would specifically provide for the development and implementation of safe work method statements;
- consultation process;
- listing of site managers/supervisors and their responsibilities;
- plant register and maintenance records;
- identification of overhead cables and related assets;
- operating environment with regard to plant and equipment;
- training requirements and records of employees;
- incident notification (including who to notify, relevant contact details and incident report);
- process to review site safety;
- emergency management; and
- appropriate employee training.

Risk assessment

When undertaking the risk assessment, consideration should be given to:

- location and type of utility services affecting the worksite
  Note: Persons measuring or estimating the height of electrical cables must not be exposed to risk of electric shock. Also, the estimated height of electrical cables must allow for any unexpected sag or sway;
- type and method of collection to be used;
- specific requirements of clients;
- type of plant and equipment to be utilised on the worksite and their design envelope;
- proximility to infrastructure;
- aspects of the work requiring specialised training of individuals; and
- ensuring that the process or procedure is appropriate for the nature, scale and environment in which it is to be utilised.

Safe systems of work

A competent person should undertake the development of a safe work system for working near overhead electrical cables. This process should involve consultation with the workers’ health and safety representatives (HSRs) or, where there are no HSRs, directly with the workers who are required to carry out the work. Advice or input may also be required from clients, the utility company or other persons experienced in this type of work.

The final work system will typically be documented in a Safe Work Method Statement (SWMS).

Diagram C: Measurements required for each worksite
Generic risk assessment
Where the work to be undertaken involves a specific, repetitive task and where the risk factors are considered to be similar, then a generic risk assessment may be prepared. Risk assessments should be documented.

Control of risks
Any identified risk to the safety of the workers or other persons must be eliminated. Where the risk cannot be eliminated it must be reduced as much as is feasible. An effective way to do this is to use the ‘hierarchy of control’ to minimise risk. Controls at the top of the hierarchy are more effective in eliminating or minimising the risk and should be implemented where possible. Specific circumstances may require a combination of controls to be implemented to control the risks.

Elimination of the risk
Methods to eliminate the risk of waste vehicles coming in close proximity to overhead electrical cables whilst collecting waste include:
- relocation of overhead cables; and/or
- the use of waste vehicles whose design envelope does not encroach the No Go Zone.

Engineering controls
Engineering controls physically prevent any part of the waste vehicle coming near live electrical cables. Examples of engineering controls include:
- modification of waste vehicle design and/or its hoisting arms, to permanently reduce its design envelope;
- temporary isolation of overhead cables;
- provision of a designated pickup area for the location of bins and skips to prevent the waste vehicle or its load encroaching the No Go Zone.

Administrative controls
Administrative controls involve the development of work procedures and systems that rely on the adequate training, skill and supervision of workers to ensure that they are implemented. Accordingly these controls are the least preferred control option. Higher order controls should be implemented where reasonably practicable. Examples of administrative controls include:
- a work procedure that requires the driver to partially lift the waste bin and then move the vehicle away from the danger zone before fully raising the bin; or
- using a spotter for ‘one off’ jobs to ensure the operation of the waste vehicle does not encroach No Go Zone clearances.

Note: The use of a spotter is not generally considered an appropriate control for continuous residential waste collection activities. For such tasks the risk assessment process should ensure that, under the ‘worst case’ scenario, the design envelope of the plant would not encroach the Table A clearances.

Some examples of risk assessments for waste collection near overhead electrical cables are provided on page 7 of this document.

Waste vehicle operation
Waste vehicles may not encroach the No Go Zone unless a permit to do so has been issued by the utility asset owner or under strict compliance with these guidelines at all times.

TRAINING
Under the OHS Act, employers of persons working near overhead electrical cables are responsible for the training of their employees to ensure compliance with these guidelines. Employers should verify and document that each employee has received the required training. The training should be developed in consultation with employees, the client and/or principal contractor (as appropriate) and include the following:
- specific electrical awareness;
- associated hazard identification and risk assessment;
- safe work systems;
- operation of plant and equipment;
- communications systems; and
- emergency management systems.

EMERGENCY PROCEDURES
An employer must provide for an emergency or incident involving overhead electrical assets including communications cables to address the following.
- What to do should the plant and equipment come into contact with overhead cables.
- How to exit the plant and equipment if necessary.
- How to manage the incident.
- How and who to contact.

Relevant training in the emergency procedures must be provided to employees. An ‘emergency flowchart’ is provided on page 8 of this document.
<table>
<thead>
<tr>
<th>RISK</th>
<th>RISK CONTROL SOLUTIONS</th>
</tr>
</thead>
</table>
| The telescopic arm of a side loading waste vehicle may encroach Table A clearances. | Solution A  
Elimination  
• Bin/skip relocated to an area clear of overhead electrical cables. |
|                                                                      | Solution B  
Engineering control  
• Control mechanism on mechanical arm modified so that the arm automatically retracts before lifting. This reduces the design envelope to ensure compliance with Table A clearances. |
| Waste bin is placed under overhead service line.                     | Solution  
Administrative controls  
• Bin is moved to a clear area prior to lifting.  
• Operator trained in new work procedure.  
• Procedure included in technical manuals. |
| Front or rear loading waste vehicle forks or bin may encroach Table A clearances. | Solution A  
Engineering control  
• The type of waste bin and collection vehicle changed to ensure design envelope does not encroach Table A clearances. |
|                                                                      | Solution B  
Administrative controls  
• Prior to lifting bin, vehicle and bin are moved into an area clear of overhead cables.  
• Site risk assessment identifies any issues with location and overhead assets, arrangements in place for safe loading and unloading areas.  
• Operator training to ensure that forks have been lowered for transit.  
• Operator has successfully completed awareness training.  
Engineering  
• Limit switches ensure the forks are in lowered position when vehicle is in transit mode. |
EMERGENCY FLOWCHART

Should contact be made with an overhead power line, you the driver/operator should stay in the vehicle at all times, unless there is a risk of fire or other emergency reason.

If you have to leave the machine, to avoid electrocution you should follow the steps below.
1. **Jump clear without touching the ground and vehicle simultaneously.** Try to land with both feet together, you should then jump or shuffle with both feet together until you are at least 10 metres clear.
2. **Do not run.**
3. **If you fall to the ground,** roll clear. Do not try to get up by pushing off with your hands as the electricity may pass through the arms and legs in contact with the ground causing you to possibly receive an electrical shock.

**Warn other people** to keep well clear of the site until the power company advises that the power is turned off.
**Do not** approach any victim in the vicinity (10m) until the power is turned off.

CALL FOR EMERGENCY ASSISTANCE ON 000 AT THE EARLIEST OPPORTUNITY AND ADVISE OF THE SITUATION AND WAIT FOR HELP.

Await verification by the power company that the power has been turned off.

Offer first aid without placing yourself in any danger.
DEFINITIONS

- **Design envelope**: the area encompassing all maximum possible unrestricted movements of the vehicle lifting arms and any part of an attached load, including the bin or skip, being lifted.

- **Envelope**: the space encapsulating a waste collection vehicle including any loads or attachments, such as the mechanical lifting arms, bin or skip being lifted, rotating/flashing lights and radio aerials, and is categorised as transit, design or operating (see definitions above and below).

- **No Go Zone**: the area surrounding overhead electrical cables on poles anywhere above or within three metres to the side and below overhead powerlines in the case of power lines up to and including 66kV and eight metres in the case of voltages above 66kV.

- **Operating envelope**: the area encompassing the maximum expected range of movements of the vehicle lifting arms and any part of an attached load for a specific restricted lift or series of lifts.

- **Spotter**: a competent person who undertakes the task of observing and warning against unsafe approach to overhead assets. A spotter for overhead electrical cables should have successfully completed an endorsed training course.

- **Transit envelope**: the area encompassing the normal height and width of the vehicle when travelling to and from a worksite.

- **Worksite**: any location, whether on public or private land, where a waste bin or skip is located.
REFERENCES

REFERENCE DOCUMENTS
Framework for Undertaking Work Near Overhead and Underground Assets
Electrical Safety Act 1998
Electricity Safety [Network Assets] Regulations [1999]
Occupational Health and Safety Act 2004
Code of Practice for Plant
Code of Practice for First Aid in the Workplace
(From the 1 July 2005 Codes of Practice made under Section 55 of the OHS Act 1985 will have the status of Guidance Material.)

FURTHER INFORMATION
All Victorian Government legislation available from Information Victoria by calling 1300 366 356 or online at www.bookshop.vic.gov.au
Further guidance on managing safety and No Go Zones material is available via the following websites.
Additional specific information about No Go Zones can also be found at www.workcover.vic.gov.au/vwa/home.nsf/pages/nogozone
CONTACTS

ELECTRICITY:
Agility (AGL): ...........................................131 626
Alinta Network Services:
Electricity Faults: ................................. 132 099
Alcoa Australia: ............................... (03) 5245 1740
CitiPower: ............................................. 131 280
Connex Trains: ...................................... 1800 800 705
Office of the Chief Electrical Inspector: . . . . . . . . 1800 000 922
Powercor Australia: .............................. 132 206
SPI PowerNet: ........................................ (03) 8635 7333
TXU Networks – Electricity faults: ............... 131 799
Yarra Trams: ......................................... (03) 9610 3394

GAS:
Alinta Network Services:
Gas Faults: ........................................... 132 691
GASNET Australia: .............................. 1800 686 634
Gas emergencies (asset owner not known): ........ 132 771
Office of Gas Safety: .............................. 1800 069 588
TXU Networks – Gas faults: ......................... 132 083

COMMUNICATIONS:
Optus:
Overhead Assets: ................................... 1800 500 305
Underground Assets: ................................ 1800 505 777
TELSTRA: .............................................. 132 203 Option 3

WATER:
City West Water: .................................... 131 691
Country areas contact your Regional Water Authority
Melbourne Water Corporation: ....................... 132 446
South East Water: .................................... 131 694
Yarra Valley Water: ................................... 131 721
‘Dial Before You Dig’: .................................. 1100