

Endeavour Energy CMEN Connected Substation List

Revision – November 2025

1 Purpose

The purpose of this document is to provide the designer with a list of Endeavour Energy's major substations and its relevant earthing configuration (bonding arrangement) as required by EDI 100.

2 Earthing Configurations

The following gives definitions for the earthing configurations listed in the report. More information can be found on each definition in EDI 100.

CMEN established

Endeavour Energy traditionally uses the 'CMEN' terminology for a zone substation bonded to the distribution earthing system and LV MEN system either directly or through HV cable sheaths – this does not align with most of the industry and care must be used when referring to this term.

At Endeavour Energy, CMEN connections are generally established at the first UGOH or distribution substation out of the zone substation by bonding the HV cable screens to the HV earth bar at the first UGOH or distribution substation. Under the CMEN configuration, the first UGOH or distribution substation is also common earthed (bonded to the LV MEN system).

The HV earthing systems of other padmount substations on the feeder shall be bonded together via the cable sheaths, but the substation is not considered CMEN unless the first UGOH/substation HV earthing system is bonded to the zone substation.

When designing a distribution earthing asset fed from a CMEN zone substation, to use metallic return as part of the 3E tool design, the designer must confirm that there is a metallic return path to the zone substation for a fault at the equipment site. This is done by tracing the metallic return path back to the source via cable sheaths (for underground) and the LV MEN neutral (for overhead). Note that there can be some pockets of HV area with no metallic return path to ZS though the area is supplied from CMEN connected ZS.

If work is being planned for the first HV UGOH or distribution substation out of the zone substation, contact earthingenquiry@endeavourenergy.com.au for direction on how to proceed as the first asset out of a zone substation generally forms a part of the zone substation earthing design.

Non-CMEN

When designing a distribution earthing asset fed from a major substation in this category, metallic return in 3E must not be used as cable screens from the major substations will not be bonded to the first UGOH/distribution substation.

Special Earthing

When designing a distribution earthing asset fed from a major substation in this category, provide details of the works to be undertaken to earthingenquiry@endeavourenergy.com.au for direction on how to proceed. Depending on the earthing configuration of the feeder and the first asset out, metallic return may or may not be used as part of the 3E tool design.

3 Additional Notes

Endeavour Energy reviews its zone substations earthing configurations based on development taking place in the surrounding area occasionally and as such the earthing configuration may change over the time. The earthing designer shall check the configuration of the earthing at the major substation that supplies the distribution asset prior to the commencement of work to ensure the correct earthing configuration is applied to the distribution asset. This information is provided in the list below and is current as of the date at the top of the document.

If a substation is not present in the list, or for other enquires contact earthingenquiry@endeavourenergy.com.au

Zone Substation Bonding Configuration List

Wednesday, 26 November 2025



Substation Name	Current Earthing interconnection details	Special Exceptions
Abbotsbury ZS	CMEN established	
Albion Park ZS	CMEN established	
Ambarvale ZS	CMEN established	
Anzac Village ZS	CMEN established or proposed	
Appin ZS	Non-CMEN	
Arndell Park ZS	CMEN established	
Badgerys Creek ZS	Non-CMEN	All 22kV feeders are double end bonded, all distribution assets to be separately earthed
Baulkham Hills 11kV	CMEN established	
Baulkham Hills TS	CMEN established	
Bella Vista ZS	CMEN established	
Bellambi TS	Non-CMEN	
Berrima Junction ZS	Special earthing	Feeders BJ1281, BJ1207 and BJ1229 are double end bonded
Berry ZS	Non-CMEN	
Blackheath ZS	Non-CMEN	
Blackmans Flat ZS	Non-CMEN	
Blacktown TS	CMEN established	
Blaxland ZS	CMEN established	
Bolong ZS	Non-CMEN	Bonding to adjoining Paper mills sub earthing is proposed
Bomaderry ZS	CMEN established	Cable screen of Feeder 3046 to Nowra is not to be bonded to Dist. Sub. 13767 earthing system
Bonnyrigg ZS	CMEN established	
Bossley Park ZS	CMEN established	
Bow Bowling ZS	CMEN established	
Bowral ZS	Non-CMEN	
Box Hill ZS	CMEN established	
Bringelly ZS	CMEN established	
Broughton Pass HVC	Special earthing	
Bulli ZS	CMEN established	
Bylong ZS	Non-CMEN	
Cabramatta ZS	CMEN established	
Calderwood ZS	Special earthing	3 feeders to the west bonded in (1A, 1B and 2A)
Cambridge Park ZS	CMEN established	
Camellia TS	Non-CMEN	
Campbelltown ZS	CMEN established	
Canley Vale ZS	CMEN established	
Carlingford TS	CMEN established	
Carramar ZS	CMEN established	
Castle Hill ZS	CMEN established	
Casula ZS	CMEN established	

Substation Name	Current Earthing interconnection details	Special Exceptions
Cattai ZS	Non-CMEN	
Cawdor ZS	CMEN established	Counterpoise to HV DS HV earthing system laid in feeder cable trenches
Cheriton Ave ZS	CMEN established	
Chipping Norton ZS	CMEN established	
Claremont Meadows ZS	CMEN established	
Corrimal ZS	CMEN established	
Cranebrook ZS	CMEN established	
Croom SS	Non-CMEN	
Culburra ZS	Non-CMEN	
Dapto ZS	CMEN established	
Darkes Forrest ZS	Non-CMEN	
Dendrobium Mine SS	Non-CMEN	
Denham Court TS	Non-CMEN	
Doonside ZS	CMEN established	
Douglas Park SS	Non-CMEN	
Dundas ZS	CMEN established	
East Parramatta SS	CMEN established or proposed	
East Prospect HVC	Non-CMEN	
East Richmond ZS	CMEN established	Feeder ER1122 inadvertently bonded to ZS earthing System
East Wallgrove SS	Non-CMEN	
Eastern Creek ZS	CMEN established	
Edmondson Park	CMEN established	
Emu Plains ZS	CMEN established	
Evans Lane SS	Non-CMEN	
Fairfax Lane TS	Non-CMEN	
Fairfield ZS	CMEN established	
Figtree ZS	CMEN established	
Gerringong ZS	CMEN established	
Glenmore Park ZS	CMEN established	
Glenorie ZS	Non-CMEN	
Glossodia ZS	Non-CMEN	
Grantham Farm ZS	CMEN established	Feeder GM1312 not to be bonded at first-out UGOH
Granville ZS	CMEN established	
Greystanes ZS	CMEN established	
Guildford TS	Non-CMEN	
Hartley Vale ZS	Non-CMEN	
Hawkesbury TS	CMEN established	
Hazelbrook ZS	Special earthing	Counterpoise could be connected to DS 17375 & DS 24915 LV earth bar, cable screens bonded from ZS earth system to UGOH earth system, cable screens bonded from ZS earth system to HV earth bar of DS 17375
Helensburgh ZS	Non-CMEN	
Hinchinbrook ZS	CMEN established	
Holroyd ZS	CMEN established	
Homepride ZS	CMEN established	
Horsley Park ZS	Non-CMEN	HS1262 and HS1122 double end bonded
Huntingwood ZS	CMEN established	

Substation Name	Current Earthing interconnection details	Special Exceptions
Huskisson ZS	Special earthing	
Ilford Hall ZS	Non-CMEN	
Ilford TS	Non-CMEN	
Inner Harbour ZS	CMEN established	
Jamberoo ZS	Non-CMEN	
Jasper Rd ZS	CMEN established	
Jordan Springs ZS	CMEN established	
Kandos ZS	Non-CMEN	Inadvertent bond to the distribution network
Kangaroo Valley ZS	Non-CMEN	
Katoomba North TS	Non-CMEN	
Katoomba ZS	CMEN established	
Kellyville ZS	CMEN established	
Kembla Grange ZS	Non-CMEN	
Kemps Creek ZS	Non-CMEN	Cable screens bonded from ZS earth system to Distribution HV earth system. Counterpoise connected between substation and Mamre Rd UGOH HV earth
Kenny Street ZS	CMEN established	
Kenthurst ZS	CMEN established	
Kentlyn ZS	Non-CMEN	
Kiama ZS	CMEN established	
Kingswood ZS	CMEN established	
Kurrajong ZS	CMEN established	
Lawson TS	Non-CMEN	
Leabons Lane ZS	CMEN established	
Lennox ZS	CMEN established	
Lithgow ZS	CMEN established	
Liverpool TS	CMEN established	
Liverpool ZS	CMEN established	
Lowes Creek ZS	Non-CMEN	Feeders LK1112 and LK1152 are double end bonded
Luddenham ZS	CMEN established	
Macquarie Fields ZS	CMEN established	
Maldon ZS	Special earthing	Feeder 35984, SS 35763 is double end bonded with ZS for Barca Metals
Mamre ZS	CMEN established	
Manildra SS	Non-CMEN	
Marayong ZS	CMEN established or proposed	
Marsden Park ZS	CMEN established	
Meadow Flat ZS	Non-CMEN	
Menangle Park ZS	Special earthing	All distribution substations to be separately earthed. HV earths must be bonded back to ZS earthing system
Minto ZS	CMEN established	
Mittagong ZS	CMEN established	
MM Kembla SS	Non-CMEN	
Moorebank ZS	CMEN established	
Moss Vale ZS	Non-CMEN	
Mt Druitt TS	Non-CMEN	
Mt Ousley ZS	CMEN established	
Mt Terry TS	Non-CMEN	
Mungerie Park ZS	CMEN established	

Substation Name	Current Earthing interconnection details	Special Exceptions
Narellan ZS	CMEN established	Feeder 27032 cable screens not bonded at load end
Nepean TS	Non-CMEN	
Nepean ZS	Non-CMEN	Cable screens bonded from ZS earth system to Distribution HV earth system
Newnes Junction SS	Non-CMEN	
Newton ZS	CMEN established	
North Bradfield ZS	Non-CMEN	All 22kV feeders are double end bonded, all distribution assets to be separately earthed
North Eastern Creek ZS	CMEN established	
North Leppington ZS	CMEN established	
North Parramatta ZS	CMEN established	
North Richmond ZS	CMEN established	
North Rocks ZS	CMEN established	
North Warragamba ZS	Non-CMEN	
North Wollongong ZS	CMEN established	
Northmead ZS	CMEN established	
Nowra ZS	CMEN established	
Oakdale ZS	Non-CMEN	
Oran Park ZS	CMEN established	
Orchard Hills SS	Non-CMEN	Feeders MM1192/A and SY1332 are double end bonded
Outer Harbour TS	Non-CMEN	
Parklea ZS	CMEN established	
Penrith TS	CMEN established	
Penrith ZS	CMEN established	
Plumpton ZS	CMEN established	
Port Central ZS	CMEN established	
Port Kembla ZS	CMEN established	
Portland ZS	CMEN established	
Prestons ZS	CMEN established	
Prospect ZS	CMEN established	
Quakers Hill ZS	CMEN established	
Quarries ZS	CMEN established	
Ringwood ZS	Non-CMEN	
Riverstone ZS	CMEN established	
Robertson ZS	Non-CMEN	
Rooty Hill ZS	CMEN established	Only Feeder T900 Plumpton Rd is not bonded at the UGOH, every other feeder is bonded
Rosehill ZS	CMEN established	
Rouse Hill SS	Non-CMEN	
Russell Vale ZS	CMEN established	
Rydalmere ZS	CMEN established	
Schofields ZS	CMEN established	
Seven Hills ZS	Special earthing	Double end bonded 8621 and A081 Microsoft, 8620 and B748 inadvertently bonded, LV neutral of Street supply bonded
Shellharbour ZS	CMEN established	
Sherwood ZS	CMEN established	
Shoalhaven TS	Non-CMEN	
Smeaton Grange SS	Non-CMEN	
Smithfield ZS	CMEN established	

Substation Name	Current Earthing interconnection details	Special Exceptions
South Bulli SS	Non-CMEN	
South Erskine Park ZS	CMEN established or proposed	
South Granville ZS	CMEN established	
South Leppington ZS	CMEN established	
South Marsden Park ZS	CMEN established	
South Nowra ZS	Non-CMEN	
South Prospect HVC	Non-CMEN	11kV Cable screens bonded
South Windsor ZS	CMEN established	
South Wollongong ZS	CMEN established	
Springhill TS	Non-CMEN	
Springwood ZS	CMEN established	
St Marys ZS	CMEN established	
Sussex Inlet ZS	Special earthing	ZS design required all distribution substations to be separately earthed
Tahmoor ZS	CMEN established	
Tallawarra SS	Non-CMEN	
The Oaks ZS	Non-CMEN	
Tomerong ZS	Non-CMEN	
Ulladulla ZS	CMEN established	Currently, Feeder ULL2 has no LV neutrals close by to bond to ZS earthing
Unanderra ZS	Non-CMEN	
Visy Paper HVC	Non-CMEN	
Warilla ZS	CMEN established	
Warrimoo TS	Non-CMEN	
Wentworth Falls ZS	Non-CMEN	
Werrington ZS	CMEN established	Mapal St Feeder only bonded
West Castle Hill ZS	CMEN established	
West Liverpool TS	CMEN established	
West Liverpool ZS	CMEN established	
West Parramatta ZS	CMEN established	
West Pennant Hills ZS	CMEN established	
West Tomerong TS	Non-CMEN	
West Wetherill Park TS	Non-CMEN	
West Wetherill Park ZS	Non-CMEN	
West Wollongong ZS	CMEN established	
Western Sydney Airport TS	CMEN established	Feeders 622 and 627 are bonded to common earthed distribution system of Western Sydney Airport
Western Sydney Airport ZS	Special earthing	All 22kV feeders are double point bonded, LV neutral of street supply bonded, all distribution substations to be separately earthed, HV underslung earth wire installed from Pole 276279 to Pole 1002279 along Feeder NB2142
Westmead ZS	CMEN established	
Wetherill Park ZS	CMEN established	
Whalan ZS	CMEN established	ZS design required distribution substations to be separately earthed
Wilton ZS	Non-CMEN	
Windsor ZS	CMEN established	
Wisemans ZS	Non-CMEN	
Wombarra ZS	Non-CMEN	
Woodpark ZS	CMEN established	
Yatte Yattah ZS	Non-CMEN	
Yennora ZS	CMEN established	