

HIGH VOLTAGE SUB STATION EXPERIENCE



Caboolture Substation

Degnan has delivered multiple high voltage (HV) substation projects, including several in the rail environment. Rail-based substations involve additional technical complexity due to earthing and bonding interactions, electrolysis protection requirements, and specific technical standards. They also bring construction challenges such as restricted access, rail safety constraints, safe working distances to traction power infrastructure, and management of stray currents from the traction system.

Across these projects, Degnan consistently manages high risk activities, including isolations and energisations, working around live HV infrastructure, and navigating congested inground services. Key examples include:

- Minto, Ingleburn and Guildford (MIG) Substations and Power Supply Upgrade Program
- Corinda and Caboolture Feeder Stations
- Rooty Hill Traction Substation Upgrade
- Hurstville Substation Refurbishment

These projects demonstrate Degnan's capability in managing the technical and construction demands of HV substation work in a live rail environment. They also highlight our collaborative approach with clients and electrical supply authorities to minimise disruption to both the rail and electrical supply networks.

Degnan also delivers upgrades for Electrical Supply Authority HV assets, working within relevant approval processes and closely engaging with asset owners and stakeholders. Example projects include:

- Bunnerong Substation Transformer Rectification (Ausgrid)
- Camperdown Substation Zone Redevelopment (Ausgrid)
- Sydney East Substation Footings (Ausgrid)
- WestConnex MOC5 Motorway Control Centre and Substation (Private HV network)

In addition to substation works, Degnan undertakes HV and power distribution works in rail environments, including installation of padmount transformers and earthing systems, installation and relocation of 11kV and 33kV poles and wires, and works around HV supply authority assets. Relevant projects include:

- Unanderra Station Accessibility Upgrade – relocation of 33kV poles and wires, installation of new poles and wires, and temporary dropping and reinstatement of Endeavour Energy 11kV distribution lines
- Como Station Accessibility Upgrade – modifications to the Sydney Trains 33kV network and installation of a new distribution substation with a non-standard deep earthing arrangement

While not all of these works are substation-specific, they demonstrate Degnan's capability to undertake HV works in rail environments and to coordinate approvals, inspections, isolations and energisations with the relevant authorities and stakeholders.

Degnan also partners with subcontractors who bring the required skills, experience and culture. For the Corinda and Caboolture project, we are partnering with Resource Services Group X (RSGx) due to their strong HV substation expertise. Degnan maintained overall delivery and coordination responsibility, including all building, civil, structural and integration works, while RSGx delivers all electrical and earthing and bonding works.

Degnan often partners with specialist subcontractors to complement in-house expertise, while maintaining overall project delivery and coordination responsibility.



Minto Substation

Degnan delivers high voltage substation projects in live rail environments, expertly managing technical and construction challenges. We collaborate closely with clients and electrical supply authorities to minimise disruption to rail and electrical networks.



Rooty Hill Substation