



POWER
CONTROL
ENGINEERS

Overhead / Underground Line Design

Our expertise in overhead and underground line design is a testament to PCE's comprehensive approach to private HV network solutions. We ensure that each design meets the specific needs of the project while complying with all regulatory standards. Our approach combines technical excellence with practical know-how, resulting in designs that are efficient, safe, and tailored to the unique challenges of each site.

Count on us





Overhead / Underground Line Design

Power Line Design - Overhead and Underground

The Design team at PCE offers years of design experience together with a practical knowledge of power line construction practices. Most of the team have gained their experience with Distributed Network Service Providers (DNSPs), designing feeders from the Low Voltage level to the sub-transmission (33kV, 66kV and 132kV) level. And with years spent project managing the construction of power lines, our team will deliver you exceptional outcomes throughout the project cycle.

Power line design is often required for:

- The development of large-scale land sites.
- Alterations to mining sites requiring asset relocation.
- Up-rating a private feeder to suit new power demands.
- Large commercial expansions.
- The development of residential property.
- Road widening projects.
- Relocation of utility assets.

Whether you are at pre-tender stage or are ready to talk to a Network Service Provider (NSP), contact PCE so we can assist you with your design requirements. If you require our Contestable Design services as a Level 3 Accredited Service Provider (ASP3), refer to our Level 3 ASP page for more details.

Overhead Line Design

PCE prides itself on delivering outstanding Overhead Line (OHL) design solutions using the latest Engineering Design software. With our extensive OHL design experience, the team at PCE will not only comply with AS/NZS 7000 and NSP Design Standards, but deliver you a design solution that considers the construction methods to be employed. And we don't just own the latest Engineering Design software, like Power Line Systems PLS-CADD, we have extensive real-world experience in using the software. This will ensure that we can model and analyse your most complex arrangements to both your satisfaction and that of any certifying authority. PCE also offer our design expertise to other engineering firms that require assistance with power line design modelling.

When you engage PCE, you can expect that all aspects of the OHL design will be managed professionally, including:

- Assessment of the route with you - our client.
- Environmental assessments.
- Modelling the electrical network with the latest engineering software - Power Line Systems PLS-CADD, PowerMation Poles 'n Wires, and Neara electric utility software - ensuring compliance with AS/NZS 7000 and the relevant NSP Design Standards.
- Calculation of forces on poles and conductors
- Specification and analysis of timber, concrete and steel poles.
- Analysis of clearances and conductor blowout.
- Specification of stay wires, pole footings, and earthing measures.
- OHL Design drawings to NSP Standards, including route plans, construction schedules, stringing tables, clearance profiles, pole arrangement and fabrication drawings, and other details as required by the constructor.

Underground Line Design

Underground (UG) Line Design is a complex task often requiring deep analysis (pun intended!). Some consider UG design to be as simple as drawing a line on paper, but this could not be further from the truth. PCE understands the intricacies of UG design gained from years of experience in designing underground power systems from Low Voltage to 132kV.

When you engage PCE, you can expect that your UG design will be thoroughly considered, including:

- Assessment of the route with you - our client.
- Environmental assessments.
- Electrical network modelling.
- Analysis of existing underground and above ground impediments.
- Calculation of cable ratings to IEC60287 and NSP Design Standards.
- Calculation of cable installation tensions and pressures.
- Specification of underbores (where required).
- Specification of cables, conduits, back-fill, Underground-to-Overhead (UGOH) poles, and associated materials.
- Underground Line Design drawings to NSP Standards, including route plans, trench sections, cable pulling schedules, and other details as required by the constructor.

We have a proven track record of successfully delivering overhead line and underground HV cable installation projects on time and within budget, and we pride ourselves on our attention to detail and commitment to safety. We provide our clients with the highest level of service and support throughout the entire project lifecycle.