



POWER
CONTROL
ENGINEERS

High Voltage System Design

At PCE, we specialise in high voltage system design, providing services up to 132kV for both private and utility-owned assets. Our experienced team is adept in handling the complexities of high voltage systems, offering design and specification services that cater to both greenfield and brownfield projects. Our commitment to delivering robust and efficient high voltage solutions ensures that we meet the highest standards of safety and reliability. Our designs are tailored to suit diverse industrial needs, reflecting our extensive expertise and adaptability across various sectors.

Count on us





High Voltage System Design

Pre-feasibility and consultancy

Our pre-feasibility assessments provide critical insight into the technical and financial viability of proposed high voltage networks, helping our clients make informed decisions. Our consulting services provide expert advice and guidance throughout the entire process, from initial design through to procurement and implementation.

Detailed design

Our team of experienced engineers have extensive knowledge and expertise in the detailed design of high voltage systems. We understand the importance of safe, reliable, high-quality outcomes and our detailed designs reflect this. This, coupled with our commitment to customer satisfaction, sets us apart as a trusted advisor within the industry.

Our team have a proven history in detailed design and specification of:

- Indoor and outdoor substation design and equipment configuration.
- Detailed design of HV protection schemes and intertripping systems.
- Selection and specification of transformers, indoor/outdoor GIS switchgear, indoor/outdoor AIS switchgear and/or switch-disconnectors.
- Power transformers, banded transformer compounds, kiosk transformers, transformer replacements and upgrades.
- Detailed design of HV switch rooms and auxiliary support systems.

- Detailed design of outdoor switch yards and banded enclosures.
- Detailed design of power factor correction and reactive power support.
- Detailed design of underground high voltage cable routes and trench cross sections.
- Detailed design of overhead / underground lines.
- Integration of cogeneration sources into both utility owned and privately owned high voltage networks.

Project management and commissioning support

Project management is a critical component of any high voltage project ensuring adequate planning, coordination, and execution of resources to achieve the project goals and objectives. Commissioning support services provide a seamless transition from construction to operation, ensuring that your high voltage system is fully functional, reliable and operates as per the original design intent.

Project management and commissioning support capabilities include:

- Coordination, planning and management of high voltage installation and system commissioning.
- Coordination and planning of primary and secondary injection testing of protection systems.
- Factory and site acceptance testing.
- Assistance with tendering and procurement of high voltage equipment and installation works
- Site supervision and commissioning.

Utility Liaison

Our team of experienced engineers and project managers have extensive knowledge and expertise in navigating the regulatory and compliance requirements of working with distribution network service providers and their stakeholders. We understand the complexities of working with these organizations and have established strong working relationships that help facilitate successful project outcomes.

Documentation, maintenance, and reliability

We provide a full range of documentation services developing comprehensive and accurate documentation related to high voltage networks including HV Installation Safety Management Plans and HV Site Master Plans. PCE have a long-standing history in coordinating and planning high voltage maintenance, repairs, upgrades, and testing tailored to your site's specific needs. Our agile approach ensures a high standard of maintenance is completed with minimal disruption to site operations.

- Development and maintenance of:
 - High Voltage Installation Safety Management Plan (HVISMP) for high voltage customers.
 - High Voltage System Configuration Manuals (HVSCM) for defence establishments.
 - Site master plans for High Voltage installations.
 - High voltage safety management plans.
- Coordination and planning of high voltage maintenance, repairs, upgrades, and testing.
- Site supervision.
- High voltage compliance audits.
- Partial discharge testing.
- Coordination of transformer oil sampling and testing.
- Earthing system baseline testing and maintenance.

We have a proven track record of successfully delivering high voltage private network projects, on time and within budget, and we pride ourselves on our attention to detail and commitment to safety; throughout the entire project lifecycle.