

## Job Description

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<b>Position Title:</b>	Senior HV Cable Design Engineer
<b>Reports To:</b>	Northern Transmission Team Leader
<b>Client(s)/Key Liaison:</b>	Niko engineers, external clients, and project managers
<b>Responsible For:</b>	Provision of engineering and design services
<b>Issued:</b>	March 2024

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### Purpose of the Role

The purpose of this position is to provide engineering support and design services to Niko's clients.

This is a technically focussed Senior Engineer role.

- The role focus will be on delivering excellent engineering using your own skills and knowledge. You will be assessing engineering data, delivering engineering calculations, collaborating with a CAD designer to produce design drawings, and making technical recommendations.
- You will not be alone – You will be working alongside other very experienced engineers.
- As a Specialist you will be looked on as a mentor to provide supporting for less experienced engineers.

While all engineering requires management this is not the focus of the role. At Niko we believe you are most valuable when you are using your technical skills.

Your primary focus will be delivering HV cable projects (110kV and 220kV). In addition to this you will have the opportunity to work on MV cable projects (33kV and 11kV) and other substation design projects. It's your choice if you want to specialise or provide a wider range of technical skills.

### Key Tasks

Major areas of responsibility include:

- Develop detailed designs, technical specification documents and reports for cable projects at 110kV and 220kV (HV/EHV), for aspects such as -
  - Cable thermal rating,
  - Installation designs, i.e. trenching, ducting, cable supports in air,
  - Electro-mechanical calculations, i.e. short circuit forces,
  - Thermo-mechanical calculations and designs to restrain/accommodate flexibility,
  - Sheath bonding designs, including calculations and specification of components i.e. link boxes and sheath voltage limiters,
  - Insulation coordination,
  - Review of FAT, Type, Prequalification (PQ) and Extension to Prequalification (EQ) test reports,
  - Cable pulling tension calculations,
  - Electromagnetic Field (EMF) calculations,

- Determination of appropriate and feasible cable routes, including locating joint bays and negotiating existing services,
- Cable joint bay layout and design,
- Cable termination design,
- Distributed Temperature Sensing (DTS) systems
- Overhead to underground transition station design,
- Substation interfaces including GIS,
- Transition stations, including consideration for constructability, maintainability, whole of life cost, and safety by design,
- Develop detailed designs, technical specification documents and reports for cable projects at 11kV and 33kV (MV), for aspects such as -
  - Cable thermal rating,
  - Installation designs, i.e. trenching, ducting, cable supports in air,
  - Electro-mechanical calculations, i.e. short circuit forces,
  - Determination of appropriate and feasible cable routes, including locating joint bays and negotiating existing services,
  - Interfaces to indoor switchgear and transformers.
- Preparation of proposals for design tenders,
- Carrying out quality assurance reviews of work by other engineers,
- Providing coaching and mentoring of less experienced engineers.
- Communicating and coordinating project activities with others as needed.
- Develop relationships with our clients.
- Manage allocated time for tasks.
- Understand and keep abreast of International Standards, New Zealand and Australian Standards, and legislative requirements.
- You will have a mixture of both leading projects and contributing to projects led by other staff, depending on capability.

### Other Requirements

- Promote and contribute to the health, safety, and environment objectives of Niko Engineering.
- Embrace the equal employment opportunity objectives of Niko Engineering.
- Enhance the profile of Niko Engineering within the community and to prospective clients.
- Contribute to the promotion of a quality culture within Niko Engineering.

## Person Specification

The person best suited to this position will possess the following:

## Education/Qualifications

- A Chartered Engineer or working towards this goal.
- 8+ years in the substation primary or similar design field.
- Tertiary qualified with a BE(Electrical) or equivalent.

## Knowledge/Skills

### *Required*

- Understanding of HV transmission and HV/LV/generation and distribution power systems,
- Significant experience in practical power system design (HV cables) up to 220kV,
- Experience with analysing and designing MV/HV cable installations, including modelling using Cymcap™ Software and specifying installation details,
- Optioneering at concept design level, taking into consideration other engineering disciplines,
- Optimisation of primary infrastructure, taking into consideration other engineering disciplines,
- Closely work with and manage structural and civil engineers, and CAD design teams
- Project lifecycle risk management across multiple disciplines
- Strong skills in the preparation of technical reports,

### *Strongly desirable*

- Experience working as a consultant in a commercially focussed environment.
- Experience with soil thermal resistivity (TR) testing in the field or in a laboratory setting,
- Familiarity with partial discharge detection/monitoring systems,
- Familiarity with insulation coordination analysis and design, including surge arrester specification and lightning protection design,
- Familiarity with civil and structural/seismic design principles and techniques relating to cable installation,
- Experience designing, commissioning and/or operating Distributed Temperature Sensing systems,
- Familiarity of New Zealand transmission/ generation/ distribution utility standards & systems,
- Familiarity with SCADA, Control & Instrumentation, and remote-control interfaces,
- High-level knowledge of protection systems,
- Well organised, pragmatic, and able to handle a diverse and complex workload.
- Strong capability with computer systems and software, particularly the Microsoft Office suite.
- Flexible with the types of work to be completed.
- Experience developing detailed construction methodologies,
- Familiarity with Microsoft Project software.

## Competencies Required

- Strong capability with computer systems and software, particularly the Microsoft Office suite.

- Flexible with the types of work to be completed.
- Ability to use initiative and make decisions.
- Attention to detail and a drive for technical excellence. Niko's reputation relies on high quality design outputs,
- An aptitude for solving problems based upon a mixture of analysis, wisdom, experience, and judgment,
- Ability to establish and maintain strong working relationships with clients and colleagues and gain their trust and respect,
- Ability to lead a multi-discipline design team, acting in a design manager or lead engineer role,
- Ability to manage design projects including resourcing, budget and timeframes,
- An understanding of civil and structural work to enable the efficient coordination of the electrical/civil interface,
- Ability to communicate protection requirements,
- Desire to develop and enhance your theoretical knowledge,
- Ability to organise and manage multiple tasks,
- Strong self-motivation and desire to work with minimal supervision,
- Ability to prioritise workload,
- Ability to confer with engineering staff and other personnel to resolve problems.

## Values

Personal values and behaviours that align to our company values:

- Be friendly and approachable, whilst being professional in your dealing with internal and external clients.
- Have consideration for the safety of themselves and others at the place of work.
- Respect for colleagues.
- Act in good faith and be fair.
- Willing to work and share knowledge within a close-knit team.
- Commitment to **outstanding** customer service.