Role definition

|  |  |
| --- | --- |
| Job title: | Principal Substations Design Engineer |
| Reports to: | Associate Director – HV Power  |
| Direct reports: | CAD Technician & Engineers |
| Business unit: | Baker Hicks Limited | Location: | Derby/Warwick/London |

Summary

|  |
| --- |
| Baker Hicks have grown rapidly in the Transmission & Distribution sector over the last five years and have been successful in winning a number of major projects within the UK. As the demand to deliver exceptional engineering design from our clients continues to grow, an opportunity has arisen for a Principal Substations Design Engineer.  |

Key objectives

|  |
| --- |
| The Principal Substations Design Engineer role will be reporting to the Associate Director of the HV Power team and will be responsible ensuring the quality and consistency of the team’s output in the production and control of drawings and technical documents. You will also assist during the bid process in order to secure further work.  |

Principal responsibilities and accountabilities

|  |
| --- |
| The candidate must have experience (depending on role) in the production of all designs, calculations, reports & drawings associated with new or modification of EHV projects from 11kV – 400kV covering primary design, secondary design and protection & control. This will cover the production of Substation primary layouts, primary equipment specifications, equipment rating calculations, busbar short circuit force calculations, earthing studies, impressed voltage calculations, production of material specification lists, fault calculations, P&C wiring diagrams, protection requirements and system modelling. The candidate must have a reasonable level of maths and science, preferably from a power engineering background and have good communication skills. In the role they will manage the production through a robust checking process but must also develop drawing office standards, mentor and train the CAD technicians and when work dictates support the actual delivery of the outputs.The candidate must be enthusiastic, mature enough to operate in a diverse team and work without full time supervision. This role can lead to many of the career paths for the employee as they develop through BakerHicks. |
|  |
|  |

Person specification

Qualifications and training

|  |
| --- |
| * Minimum BEng/Bsc in Electrical Engineering, ideally MEng/MSc in Electrical Engineering.
* Be or working toward CEng status, however not essential.
* Ideally working toward TP137 / TP141 authorisation by National Grid, however not essential.
 |

Technical skills and experience

|  |
| --- |
| * Guiding junior and other engineers
* The candidate shall be proficient in the technical requirements of area ‘a’ below, but proficiency in area ‘b’ is desirable as well:
1. Primary Design:

 Delivering primary design requirements, including but not limited to:* + Primary layouts for substations
	+ Transformer, shunt reactors, NER’s, Reactive & Capacitive compensation
	+ GIS & AIS switchgear
	+ Earth Switches, CT’s VT’s, Surge Arrestors, Circuit Breakers, post insulators, Disconnectors, etc
	+ Step & touch potentials
	+ Impressed voltage studies
	+ Earthing study & earth return
	+ Busbar short circuit forces
	+ Insulation coordination
	+ Type registration
	+ FAT of equipment
	+ Writing technical specifications for procurement
	+ Calculations & Technical reports
1. Secondary and P&C Design:

 Delivering secondary design requirements, including but not limited to:* + Secondary layouts for substation
	+ System modelling
	+ First main protection
	+ Second main protection
	+ Backup protection
	+ Overall protection
	+ Busbar protection
	+ CT sizing
	+ DAR lockout – Cable unit protection
	+ Fault calculations
	+ Site electrical interlocking calculations
	+ CT sizing calculations
	+ Protection discrimination studies
	+ Writing technical specifications for procurement
	+ Calculations & Technical reports
* Preparation, checking and approval of feasibility studies, outline and detailed design technical reports and other written documents.
* Design, checking and approval of detail construction drawings.
* Production and approval of design concepts, drawings, specifications and other technical documents.
* Management of teams of engineers and external suppliers.
* Delivery of work to programme, budget and specification.Take part in Design & HAZID (hazards in design) reviews as appropriate
* The adherence to and control of documents and drawings in accordance with Baker Hicks management procedures.
* Design input/output within the designated risk management process.
* Development of team specific standards to ensure the consistency of the output.
* Development of the team’s CAD technicians.
* Accept ownership of work to be done (i.e. being required to undertake specific actions within an agreed job boundary, the execution of a delegated task, activity or process).
* Providing programme updates to the Lead Engineers and managing programme phases for the duration of the project life.
 |

|  |
| --- |
| * Highlighting any quality and delivery risks.
* Provide a technical interface with 3rd parties
* Understanding of IEC standards
* Experience in software packages such as MathCAD, ETAP, DigSilent, PSS/E, ERACS, CDEGS etc.
* Experience in guiding CAD technician working in packages such as Microstation, Revit, AutoCAD etc.
* Be proficient with associated technical specifications from clients such as National Grid, SSE, Scottish Power, UKPN, WPD, ENWL etc.
* Good computer and report writing skills
* Good interpersonal skills and the ability to work well within a team
* Good attitude to obtaining new skills and capable at transferring existing skills to overcome new challenges
* Must be competent at creating and laying out quality drawings that contractors, suppliers and fabricators can understand
 |