

electrical design

overflow drafting

(true) intelligent CAD

instrumentation design

cable routing/scheduling

panel layouts

115KV BUS # 1

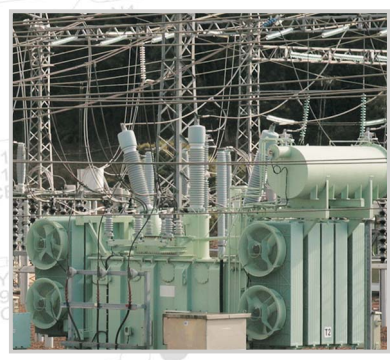


I+E Overflow Design/Drafting Resource

Elecdes Manpower offers a professional, timely and very cost effective outsourcing solution for electrical CAD drawings. When you have an overload of work, lack skilled draftspeople or there is pressure to meet tight deadlines, Elecdes Manpower offers computer-aided drafting and documentation services for all electrical and instrumentation projects.

Elecdes Manpower is fully equipped to handle all types of switchgear engineering/control and relay panel engineering and

cable routing for substations, power stations and other plants. Our extensive experience in design and drafting has assisted many customers to meet schedules well in advance with high quality outputs.



Wherever your project is based, we produce drawings to meet your local requirements and all drawings can be exchanged via ftp, email, fax or courier.

We work closely with our clients to establish project guidelines and delivery timeframe's and assign a project engineer to review all drawings to ensure that they are of the highest standard before delivery.

Our drawings are typically created in a DWG format as Elecdes is AutoCAD based and supports versions 2000 through to 2008. We can also convert drawings to PDF or DGN format as required. Our engineering team specialises in substation projects and our drafting team cover all disciplines including substations, Medium Voltage, Low Voltage, Control and Instrumentation.

Elecdes enables electrical CAD drawings to be produced far more quickly than with standard drafting tools and our experienced drafting team means we can meet deadlines and be very competitively priced.

ELECDDES MANPOWER

Global Experience
Local Solutions

Elecdes Manpower is part of Scada Systems Limited, a multi-national company with the head office in Auckland, New Zealand.



ACTIVITIES

Calculations

- CT/PT calculation
- ACSR conductor selection
- Earthing calculation
- Lightning protection calculation
- Busbar selection
- Sag tension calculation
- Cable size selection
- Interface engineering (Substation)

Materials Lists

- Earthing Materials
- Lightning protection material list
- Cable routing, length, cable drums
- Busbar and ACSR quantity
- All schematic, wiring components, wire lists
- Cross section fill area of raceways

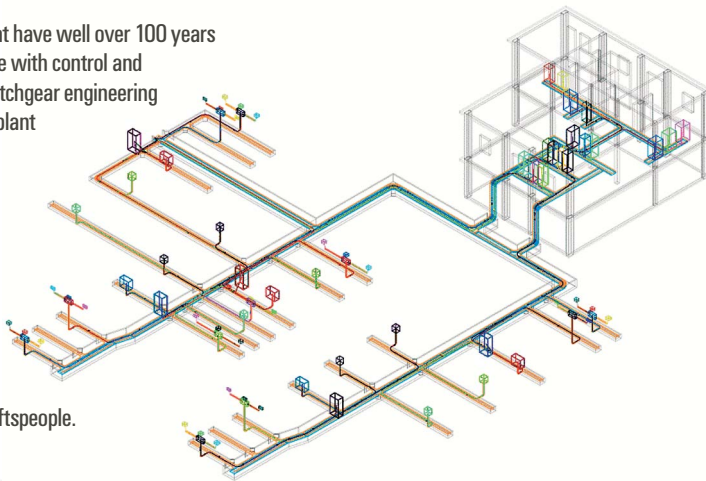
Drawings

- Single Line Diagram
- Protection Logic
- Earthing layout
- Cable raceway layouts (2D or 3D)
- Panel general arrangement
- Switchyard layout with sections (2D or 3D)
- Detailed Schematics, wiring diagrams, loops
- Lightning protection layout
- Cable routing layouts
- Panel label and cut out detail

Typical customer inputs: Single Line diagram, parts specification, material ordering information, layout and interconnection and raceway guidelines.

RESOURCES

- 5 Senior engineers that have well over 100 years combined experience with control and relay panel/MV switchgear engineering and substation and plant engineering.
- 4 Engineers that have experience with protection engineering/plant and substation engineering.
- 18 Electrical design draftspeople.



EXPERIENCE

Using Elecdes and Paneldes software we have successfully executed control/ protection and switchgear engineering projects that have included:

USA - RG &E Utility (Consultant: EPRO), Project: Substation 7, Substation 42, Substation 135 United Electric Systems Inc. **19,500 Man hrs.**

UK - Areva, Project: AL KHULAIS Saudi Arabia, 380kV/110kV Substation - **7,000 Man hrs.**

Malaysia - Areva, Project: China Light Power Project, China, various Sub-stations - **7,500 Man hrs.**
 Project Name: AFAM VI Combine cycle power house and switchyard - **7,500 Man hrs.**
 Project Name: SHELL Eastern Petroleum Ltd 66kV S/S extension - **2,000 Man hrs.**
 Project Name: Luzon 230/69kV S/S - **3,500 Man hrs.**

Singapore - Areva, Project Name: Tutong DES, Brunei. Description: 69kV Control and Protection - **3,000 Man hrs.**

Saudi Arabia - VA Tech, Project Name: Saudia City Haram III Substation/ SEC West Substation 8097/ SEC Central/Substation Muhail North / SEC South, Saudi Arabia/Haraj & Al Salamah Substation SEC West - **15,000 Man hrs**

UAE - Power Economy Middle East Co., Project Name: 132kv control and relay panels for 132kv Harweel sub station, refinery - Oman **2,000 Man hrs.**

India - BHEL, Project Name: Amarkantak & Santaldih & Lehra Mohabhat - Indian Public Sector. 6.9kV:17 switchboards/320 cubicles - **3,000 Man hrs.**
 Project Name: Korba, RAPP, KPCL (400kV Bellary), Muzaffarpur (220kV Switchyard) - **8,000 Man hrs.**

HISTORY

Elecdes Manpower is part of Scada Systems Limited. For over 18 years Scada Systems has been developing electrical design software known as Elecdes Design Suite and is highly regarded amongst global industry engineers. For the last 10 years Scada Systems has also been using the software to provide a comprehensive engineering and drafting service to worldwide clientele.

AT YOUR SERVICE

To find out more about our drafting resource or to obtain a quote consult your Elecdes Manpower Representative
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 or send an email to:
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