



A specialist energy consultancy

Industrial services

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TNEI is an independent specialist energy consultancy providing technical, strategic, environmental and consenting advice to organisations operating within the conventional and renewable energy sectors.

Industrial services

We offer specialist electrical system analysis of industrial facilities, including aluminium smelters, ports, pharmaceutical plants, petrochemical plants, power stations and oil and gas refineries and terminals. The complex electrical networks that feed critical systems need careful assessment to ensure they can maintain supply to critical operations.

TNEI can offer services such as:

- Load flow analysis
- Short-circuit analysis
- Motor starting analysis
- Protection review and setting
- Arc flash consultancy
- Transient stability and dynamic assessment
- Harmonics analysis, measurement and filter design.

All work is performed to international standards or other appropriate standards as required by the client. TNEI has extensive experience of ETAP, PSCAD, DigSilent, SKM Power Tools, IPSA and many other software programmes, giving us a unique capability to provide clients with bespoke solutions.

TNEI provides a multi-faceted approach to industrial projects, drawing upon our significant knowledge in consenting and permitting, environmental assessment, civil and structural design, geotechnical surveys, cable routing and installation, and operations and maintenance.

Additionally, our noise and acoustics team has industrial noise assessment experience across a diverse range of industrial sectors, including waste management, manufacturing, oil and gas, food and drink, animal rendering, quarrying and sawmills.

Typical services include:

- Occupational noise assessment
- Compliance monitoring
- Noise propagation modelling
- Environmental / PPC permitting and planning applications
- Silencer, enclosure and barrier specification.

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Case studies

Service: Fault level assessment
Client: Large port

TNEI's client, a large port, expanded its container terminal facility and the extension required a new 33kV and 11kV distribution network to provide power to up to 34 new cranes. The cranes had potential maximum demands of 1.9MW and 2.65MW. The proposed new network was to be connected with part of the existing dock and a CHP facility. TNEI was asked to perform an assessment of potential short circuit levels to determine if any limitation of the regenerative short-circuit current contribution of the cranes was required. Calculations were performed using network models developed in IPSA power systems analysis software. TNEI concluded that short-circuit magnitudes could be maintained within network equipment ratings for all likely levels of crane short-circuit current contribution. This enabled all interested parties to proceed with the proposed new network design with reassurance that the new network would be suitable for its intended short and long-term intended purpose.

Service: Arc flash consultancy services
Client: Offshore oil and gas platforms

TNEI is regularly asked to provide arc flash consultancy to organisations making an ongoing effort to improve safety and understand electrical hazards.

TNEI has provided the following arc flash services to offshore oil and gas platforms:

- Arc Flash Severity Assessment and PPE specification
- Arc Flash Likelihood Assessment

Arc Flash Severity Assessments were performed and required an accurate model of the site's electrical system including protection scheme details and trip characteristics. The assessment considered multiple network operating scenarios to determine the possible range of fault current flow, from minimum to maximum, to enable the worst case potential incident energy to be identified. For some locations on the platform, the greatest risk was identified under emergency operation where power was provided from smaller back-up diesel generator units. Arc flash severity studies normally involve analysis of primary circuit protection only, however, in this specific instance the protection scheme required consideration of both under impedance and under voltage protection relays. The results of the study were used by the client to prioritise the location of risk reduction methods such as remote switching. TNEI also recommended that protection settings were modified to significantly reduce arc flash incident energy severity with no impact on security of supply under fault conditions. TNEI's recommendations were implemented by the client and arc flash hazards on the platform successfully reduced.

Key contacts

Luke Taylor
Principal Consultant



Luke has 10 years' experience working with large and/or critical electrical power systems including petrochemical plants, power stations, pharmaceutical plants, banks and data centres. His professional experience includes power systems analysis, power quality measurements and analysis, protection coordination and forensic analysis of failed plant. His varied professional experience has required excellent written and verbal communication skills in addition to a broad technical knowledge.

Steve Dixon
Specialist Consultant



Steve is a Chartered Electrical Engineer with over 20 years' experience in the design, installation and commissioning of projects within the power industry and has a broad range of experience in power systems studies, grid code compliance, technical strategy and project management for the power sector, including offshore transmission and offshore wind. Steve's sector experience includes nuclear power, conventional power, renewables, transmission, distribution, pharmaceutical, chemical, and water industries. His professional experience includes power systems analysis, protection coordination and the design, specification, installation and commissioning of electrical systems.

Get in touch

We are a specialist, independent company. That's why we can offer a flexible, personal service and help our clients quickly and efficiently, without all the big corporate distractions.

But most of all, we love to solve problems.

For more information about our industrial services, please contact Luke Taylor; email: luke.taylor@tneigroup.com or call: +44(0)161 233 4807.



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For more information about who we are and what we do, please contact: info@tneigroup.com

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