ELECTRICAL ENGINEERING SERVICES

DNV provides independent Electrical engineering advisory services for the onshore wind and solar PV markets. We work with project owners, developers, investors and equipment manufacturers to undertake electrical design, studies and inspections.

OUR SERVICES

Managing the technical challenges
Our Electrical engineering experts have in-depth knowledge of grid connections, fault diagnosis and regulatory compliance. We offer many services including:

Electrical studies
- Load flow studies.
- Short circuit current studies.
- Voltage fluctuation and unbalance study.
- Electrical loss assessments.
- Transient and dynamic stability.
- Harmonics analysis.
- Reactive power compensation design.
- Protection co-ordination study.
- Constraints analysis.

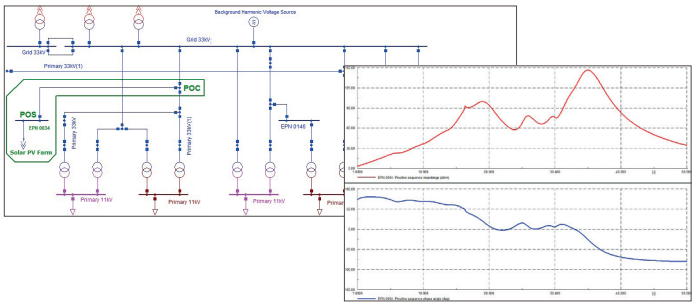
Additional Electrical engineering services:
- Conceptual/preliminary designs and drawings.
- Specification of electrical equipment.
- Employer's requirements and technical specifications/ requirements.
- Site inspection and construction quality monitoring.
- End of warranty inspections, takeover and snagging inspections.
- Electrical failure analysis and technical root cause analysis.
- Thermographic imaging.
- Constraint and curtailment analysis.

Full project lifecycle electrical engineering services

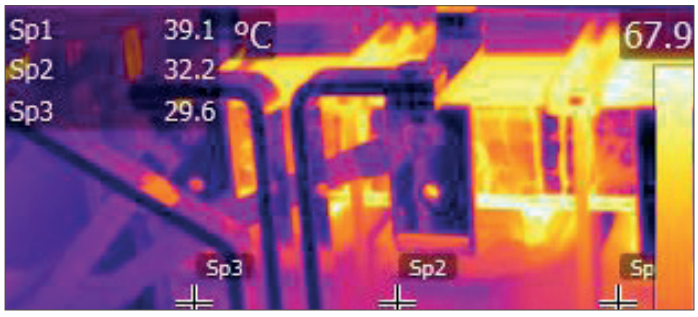
Conceptual and preliminary design
DNV has significant experience in producing conceptual electrical layout designs and single line diagrams (SLD) for renewable developments. We undertake electrical system designs, inclusive of connection and collection systems to optimise losses against operational costs. From this process, we are adept at producing the associated electrical equipment specifications.

Electrical studies
Our experts have performed a range of electrical studies for wind farm and solar PV projects to determine the suitability of electrical system designs under a variety of conditions. Electrical studies are undertaken to optimise plant performance, ensure grid code compliance, prevent potential equipment malfunction, damage and failure or disconnection.

Failure analysis
We undertake investigations and technical root cause analysis for electrical failures and provide recommendations for remediation and repair. With experience spanning wind turbine, photovoltaic and storage technologies, our team has a proven track record in root cause analysis and is able to utilise in-house specialists and labs should forensic examination be necessary.



DIgSILENT PowerFactory Network Analysis.



Thermal imaging – inspections and fault finding.

Site inspection and quality monitoring
A suite of "Quality Requirements Schedules" and QA document templates are used alongside regular electrical QA inspections, to ensure that construction quality is maintained and industry best practice is backed up with suitable documentation. We conduct HV auditing to ensure that installations are designed, constructed and operated in compliance with statutory legal requirements. Our team utilise thermal imaging to aid with inspections and fault finding to detect overheating components or temperature differentials which may lead to damage or failure.

We regularly carry out inspections to support wind farm and solar PV owners and operators for pre-commissioning, prior to defect warranty expiry under the electrical works contract and ad-hoc inspection services throughout the operational life.

Grid connection support
Our experience is notable. We have liaised with network operators globally (in the UK working with both DNOs and National Grid), to facilitate the connection of renewable generation to electricity networks. We have undertaken network connection feasibility studies, connection offers/agreement reviews, "private wire" arrangements, constraints and interpretation of historical outage data. We also undertake site visits during construction for switchgear commissioning, snagging works and witness testing. We offer connection specific constraint analysis forecasting over the life of the generation connection.

Over the last five years, we have delivered numerous network curtailment forecasts derived from our in-house analysis model; forecasting regional grid curtailment for ten year periods. Our validated model has been the preferred forecast by many customers, including developers and lenders.

CONTACT US
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