

# CIVIL, STRUCTURAL & GEOTECHNICAL SERVICES

Our core technical service offers expertise in managing the engineering challenges of civil and geotechnical design, as well as the construction of onshore wind and solar PV plants.

## OUR SERVICES



Do you have the expertise needed to carry out in-depth engineering analysis of the design and construction of foundations? Do you have the insight to understand how soil and rock can impact the placement and future production of energy generating systems?

### Built to your requirements

DNV's civil, structural and geotechnical experts offer a range of advisory services for the onshore wind and solar PV markets. We work with project owners, developers, investors and equipment manufacturers, to provide services for the full project lifecycle - from site development, through to construction, operation and decommissioning.

We have a dedicated team of specialist engineers and over a decade of experiences in related services, spanning over 5,000 MW of wind and solar projects, in more than 25 countries.



# OUR CORE CIVIL, STRUCTURAL AND GEOTECHNICAL SERVICES



## Wind turbine foundation design review

Our in-house tools and assessment processes allow us to efficiently review foundation designs. These reviews provide wind farm owners, operators, lenders and investors with confidence in the strength and durability of their assets. We have significant experience of reviewing foundation designs in unusual or challenging conditions, including peat, contaminated land, seismicity zones, and reclaimed waste sites.



## End of warranty services

We ensure that problems with your civil balance of plant assets are identified before warranties expire.



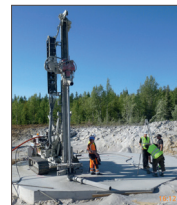
## Embedded cans

Our inspections, measurements, monitoring and reporting for foundations with embedded can connections give you recommendations for protection, repairs or future monitoring of the interface.



## Employer's requirements & technical specifications

Our employer's requirements embed lessons learnt from over five gigawatts of previous projects, before construction even begins.



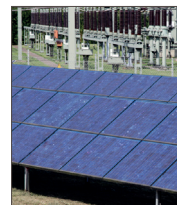
## Geotechnical services

Scoping, procuring, and managing ground investigations for wind farm and solar PV projects, perform analysis of results and desktop information.



## Construction inspection & quality assurance (QA)

By managing construction QA through site inspections and desktop review, our in-house QA documents linked with our Employer's Requirements help to ensure construction quality is upheld and recorded.



## Solar structures

You can benefit from desktop reviews, site inspections, analysis and reporting, as well as verifying compliance with design codes and standards.



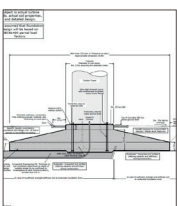
## Site assessment & constraints

Our desktop review and site inspections help to assess development and construction issues, including preliminary route assessment and site constraints.



## Health and fatigue life assessment

A review of existing assets supports assessment of operational health, degradation and requirements for remediation or repair. We can also carry out a numerical life assessment to estimate the lifetime of foundations.



## Preliminary design

Our conceptual, civil, structural and layout designs for wind and solar projects support planning, development & tendering through advanced preliminary design drawings and structural calculations.



## Failure analysis

We offer civil and structural failure analysis for wind and solar PV sites. This includes a review of designs and commentary on design codes and assumptions, as well as independent structural calculations for remedial solutions.



## Root Cause Analysis (RCA) and Apparent Cause Analysis (ACA)

DNV's RCA or ACA process includes validation testing of hypotheses to determine the most probable root cause or causes of structural or geotechnical failures.



## CONTACT US

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