



DIGITAL SOLUTIONS

CASCADE™ FORESIGHT

Complete assessment of the health and risk of critical utility assets

Finding the optimal replacement or maintenance moment of an asset is a challenge that has risen to the top of utility companies' agendas. Asset managers need to make informed decisions based on inputs such as failure data, inspection data, maintenance data and financial constraints. Driving this need are technical factors such as the aging asset fleet, the increase in grid load and the increase in intermittent and reverse power flows. From a business perspective, the drivers include demanding KPIs and budget restrictions.

Cascade Foresight provides utility companies with in-depth predictive models designed to assess the health and risk of their critical asset fleets, enabling asset managers to take

better-informed decisions to ensure the availability, reliability and safety of the grid. Cascade Foresight's models and business logic incorporate decades of knowledge and experience from DNV GL in the areas of operational performance, asset reliability, sustainability and safety.

The solution will determine the remaining life of your equipment fleet, identify your top priority capital replacement targets and assess the assets' risk to your organization. With Cascade Foresight, you can focus your asset management efforts where and when they are needed, thus driving down costs, meeting regulatory compliance demands, reducing outages and creating a validated plan for capital replacement programmes.

Ensure a safe, sustainable and reliable grid with Cascade Foresight



Predictive modelling of critical asset health

Cascade Foresight is a purpose-built modelling and analytical software application designed to assess the health and risk of your critical asset fleet. The solution employs the expertise of DNV GL engineers and refined statistical analysis to accurately predict the remaining of life of transformers, switchgear, cables and virtually any other asset type.

Cascade Foresight applies its assessment of equipment health against your corporate risk profile to provide an actionable view of high-risk assets within the asset fleet. The software application comes with proven assessment functions and provides the ability to build new functions and modify functions to adapt to varying conditions and challenging operating environments.

Year-by-year equipment assessment

Cascade Foresight delivers an accurate assessment of each individual piece of equipment, including its remaining life and risk to the organization's KPIs. On an aggregated level, the solution delivers a year-by-year assessment of equipment requiring replacement and/or additional maintenance well into the future, providing utilities with a methodology for allocating capital investments from a medium to long-term perspective.

Cascade Foresight is an indispensable tool for utility companies to become ISO 55000 compliant, assuring that utilities can invest strategically in their critical physical assets, rather than reacting to failure.

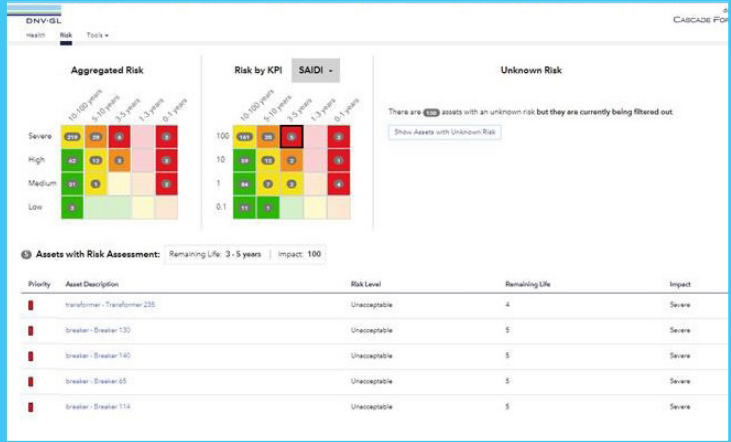
Data management: a Cascade Foresight strength

Cascade Foresight is packaged with an industry leading inventory of assessment functions designed to evaluate an extensive population of failure modes per asset type. To understand the reliability of a utility's asset fleet, the data used in the assessment model must be reliable. The solution has been designed with the ability

to construct adaptors to connect to virtually any data source, including data warehouses and data lakes, both on premise and in the cloud. The data required to build a model with a high level of confidence may exist in numerous data stores, in diverse formats with varying levels of quality.

CASCADE FORESIGHT AT A GLANCE

- Proven asset health and risk modelling, supporting replacement and maintenance decisions
- Extensive data transformation and management capabilities, handling different levels of data quality
- Integrates to virtually any data source
- Intuitive dashboards and visualizations
- User-friendly and configurable to your fleet of assets
- Web-based, cloud-supported
- Optimized Capex and Opex
- ISO 55000 compliant



Mitigating for data uncertainty

Cascade Foresight uses advanced statistical analysis to account for missing data, either through induction, statistical inference or default input distributions. The software takes into account the uncertainty in the input data and will show you to what degree the uncertainty impacts the decision or action, while highlighting the areas within your organization that may require additional attention to data management.

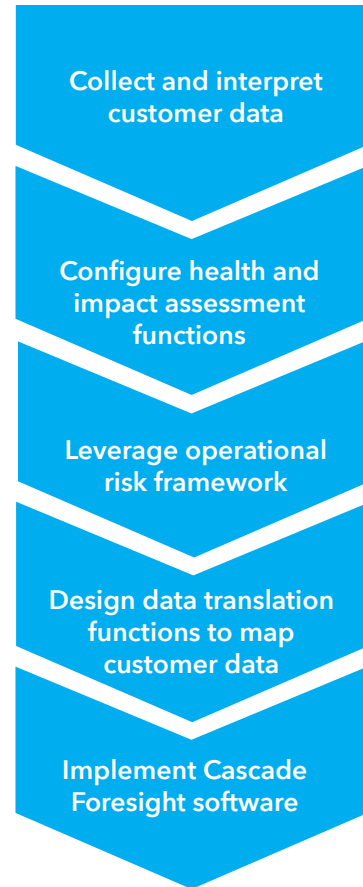
Data-driven, cloud supporting, web-based, secure

Cascade Foresight has been designed to support enterprise deployments through a web-based architecture, either on premise or in the cloud. All that is needed to build and view asset models is access to a browser and a secure network. The software uses application level security to control what user rights are granted to a specific individual. Models are delivered through graphic dashboards displaying assessment results, analytics, statistical confidence, map locations and replacement waves. The solution will also display internally configured risk matrices, driven by corporate KPIs, with each assessed asset plotted on the matrix in its calculated cell.

Cascade Foresight implementation

Cascade Foresight's implementation process aligns data availability, information needs and specific conditions within your organization to maximize the benefits without imposing changes to company systems and processes. DNV GL's Energy Advisory and Digital Solutions consultants will assist clients to support a successful Cascade Foresight implementation.

Implementation process





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About DNV GL

DNV GL is a global quality assurance and risk management company. Driven by our purpose of safeguarding life, property and the environment, we enable our customers to advance the safety and sustainability of their business. Operating in more than 100 countries, our professionals are dedicated to helping customers in the maritime, oil & gas, power and renewables and other industries to make the world safer, smarter and greener.

Digital Solutions

DNV GL is a world-leading provider of digital solutions for managing risk and improving safety and asset performance for ships, pipelines, processing plants, offshore structures, electric grids, smart cities and more. Our open industry platform Veracity, cyber security and software solutions support business-critical activities across many industries, including maritime, energy and healthcare.