

Identifying the cause of component failure

Receive swift, authoritative and independent diagnosis of your component failure. Our **Root Cause Analysis services** get to the heart of the problem and provide a sound basis for future action to safeguard your operations and the interests of your business.

Our solutions

Our breadth of expertise across all areas of generating plant and technologies allows us to quickly access the right know-how to investigate your plant or component failure. We are supported by in-house leading specialists with the skills to address complex technical issues.

Our multi-disciplinary team combines decades of operational experience with a constantly updated knowledge of failure risks.

We are independent of equipment manufacturers and have the know-how to make an authoritative challenge to OEM investigations.

We employ a range of specialist techniques, including vibration analysis, materials and corrosion analysis, underpinned by in-house testing and laboratory facilities, to investigate failures with minimum delay and disruption to your operations.

Drawing from our experience of owning and operating over 38 GW of reliable power generating capacity, with a portfolio including gas-fired, coal-fired, hydroelectric and wind and solar plant, you can be confident we have the technical experience to identify the root cause of your failure.

Benefits

- **Minimize downtime** and lost income by swiftly identifying the cause of failure.
- **Reduce operational costs** – challenge OEM strategies on maintenance, repair and replacement.
- **Manage assets more efficiently** by understanding why and when components fail.
- **Prevent future failures** by identifying the risks for similar plant.
- **Present a robust case** in warranty claims, arbitration and court hearings.
- **Reduce complexity and risk** – access our complete package of analysis and advice from a single source.
- **Gain operational insights** developed through decades of energy industry experience.

References

Case	Client	Scope of work	Benefit
Steam turbine blade failure	Major utility	The maintenance company claimed that operational practices caused the failure, but our forensic analysis showed that the blades were vulnerable to cracking. Our expertise: materials, steam turbine design, chemistry, finite element analysis, quality, non destructive testing and operations.	Liability between our client and the maintenance company was settled by negotiation between lawyers.
Gas turbine compressor blade failure	Major utility	Our detailed forensic analysis of failed parts established fatigue as the cause, prematurely instigated by machining errors and surface treatment issues. Our expertise: materials, quality, gas turbine design and operations.	Replacement compressor was supplied and installed without cost to our client.
Failure of relay contacts leading to inadvertent circuit breaker closure and severe damage to generator rotor	Insurance company	We analyzed processes and decisions leading up to the incident to identify when the fault occurred.	Our client used our findings to resolve a dispute with the other insurers over liability for the fault. Our client avoided payment of a significant warranty claim.
Failure of offshore wind farm export cable	Wind farm operator	Our detailed investigations into root cause identified a fundamental manufacturing defect, also affecting other export cables and inter-array cables. We presented options for repair/replacement and mitigation of future failures.	Our client recovered significant sums, both in damages and compensation for lost revenue.
Scour damage to offshore wind farm array cables	Wind farm operator	We investigated scour damage and prepared a risk matrix for each turbine. High risk elements were identified and assessed for asset life dependent on length of exposed array cable.	Our client gained an understanding of the asset-based risk and how to manage it. They were also better placed to consider options to rectify the damage compared with loss of revenue.