No matter how trivial the cause, power failures during operation or non-conformities during testing can have profound and widespread consequences for you and your customers. Understanding why a failure happened is the first step to stopping it happening again. Our Power Failure Investigation service offers comprehensive, impartial analysis. By drilling down to the root cause, our experts help you prevent future outages, improve your processes, increase asset safety and reliability, and rebuild trust. Ensuring a safe and reliable energy supply is the number one priority for power systems. As systems become more connected, the potential impact of an outage is growing. Meanwhile, factors such as ageing infrastructure, the growth of renewable and distributed energy sources, and the rapid introduction of new - often unproven - technologies increase the risk of failures. When the worst does happen, if you understand why, you can take steps to prevent it happening again. Failures can happen during testing (‘non-conformities’) or during operation, but identifying the root cause of a failure can be a major challenge. DNV GL has been investigating failures for over 100 years. Our unique blend of expertise for all components and systems, global experience, independence, and reputation for impartiality and discretion gives you objective insight to learn from the failure. So you can improve your processes and practices to help prevent a recurrence of the problem.
In-depth, independent analysis
Our investigative approach is characterized by three distinct stages. Firstly, we collect as much information about the failure as possible. Typically, this extends from equipment design and production quality, to testing after installation and, in the case of a power failure during operation, related secondary equipment, network behaviour, and maintenance and operation practices. This can include a review of quality control documentation, SCADA and protection system read-outs, a site visit, interviews with persons involved, and a detailed dismantling of the failed components in our dedicated failure investigation laboratory (or in any other laboratory around the world).

Next, the retrieved facts are used to formulate hypotheses for the root cause of failure. Specific material analysis, mechanical and electrical tests, simulations and inspections may be used to verify the hypotheses, depending on the situation.

Finally, we translate the results of the investigation into recommendations based on your chosen areas of failure mitigation, from design to operation. The recommendations help you mitigate the impact of the failure and are crucial for controlling the risk of recurrence.

The results – including analysis approach, findings and recommendations – are delivered in a high-quality report. Our experts can also deliver a presentation and further discussion if you wish.

Unique expertise and experience
Our investigators range from component specialists to system-level experts, in technical, financial and business management fields – all trained in formal root cause analysis techniques. They are familiar with both traditional and novel technologies, and all component and system lifecycle stages.

Our extensive experience covers transformers, switchgear, power cables and accessories, overhead lines, power electronic drives, HVDC systems, motors and generators, batteries, insulators, transmission towers, surge arrestors, capacitor banks, rotating machines and secondary equipment – as well as complete power systems. That includes wind- and solar-power specific components and systems, and all voltage classes – both AC and DC, land or submarine.

World leading facilities
Investigations can be carried out at your site, or in our industry-leading laboratories in Europe, Asia and the US – which include the world’s most powerful short-circuit and high-voltage, mechanical, material and microscopy labs and our specially dedicated power failure investigation laboratory.

Global reach, local service
With offices worldwide, we can respond rapidly to any request and be on-site for an initial visit anywhere in the world as soon as possible. You can also take out a 24/7 service agreement to guarantee an investigator is available to be on-site within hours of you reporting a failure.

Trusted impartiality
A failure investigation by DNV GL is fully impartial. This can prove crucial for finding the actual root cause of a failure, especially when the stakes are high and/or when lawsuits are involved. DNV GL will also always treat all failure or incident related information with the highest confidentiality, so parties will reveal essential information to us which would otherwise never have been released.

We also provide legal support services such as expert witnessing in court sessions and to help settle liability claims.

Need urgent help with a power failure?
Call our 24/7 hotline or email us today.

Netherlands: +31 26 356 2727
Singapore: +800 8899 8866
pfi@dnvgl.com