Changyou SUO

PhD MIEEE

OSKEFER
Failure & Incident Investigation

PROFILE

Oskefer Consulting, headquartered in Singapore, is an engineering consultancy firm specializing in **incident investigation** (including failure analysis, forensic engineering investigation, and root cause analysis), **risk-based consulting** (such as risk-based design review, inspection, and condition assessment), and **expert witness** services.

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Changyou Suo joined Oskefer Consulting Pte Ltd in November 2025 and serves as a Senior Consultant in Electrical Engineering. With over 10 years of R&D experience in condition monitoring technology, health assessment, aging mechanism analysis, and failure investigation of electrical power equipment. Dr. Suo brings extensive expertise to the company.

Dr. Suo began his career with foundational academic research at Harbin University of Science and Technology, focusing on the dielectric properties and failure mechanisms of insulating materials. He subsequently advanced his expertise as a Lecturer at the same institution, leading applied research projects on cable aging and life assessment for industry partners. In 2021, he joined Nanyang Technological University – Singapore Power Joint Lab as a Research Fellow, where he led critical components of industry-funded projects on risk-based asset management, condition monitoring, and data-driven modelling for power asset investment planning. He developed and implemented on-site PDC testing procedures and an enhanced health index methodology for power cables and transformers, integrating post-mortem analysis to improve the accuracy of condition assessment and remaining life prediction. This unique combination of theoretical knowledge and practical experience enables him to provide expert consultancy in failure investigation and asset health assessment for the energy sector.

Dr. Suo possesses professional proficiency in Chinese and English.

KEY STRENGTHS:

- Profound knowledge and hands-on experience in high voltage and insulation technologies.
- Expertise in power equipment health assessment, aging mechanism analysis, and life prediction.
- Proficient in advanced dielectric testing (e.g., PDC, VLF tan δ, PD) and data analysis.
- Skilled in developing data-driven models for asset management and risk-based investment planning.
- Strong background in both academic research and industrial application projects.

INDUSTRY EXPERIENCE:

- **Power Transmission & Distribution (**HV/MV Cables, Transformers)
- **Electrical Asset Management & Condition Assessment**
- **Failure Investigation & Root Cause Analysis for Power Equipment**

PROFESSIONAL EXPERIENCE

November 2025 – Present **Oskefer Consulting** ***Senior Consultant***

- As Senior Consultant, **r**esponsible for conducting electrical failure investigations and analysis, including leading site inspections, producing technical reports, and communicating findings to clients. Tasked with providing expert-level consultation to engineering teams on complex failure cases to enhance technical capabilities.
- Committed to continuous skill development and team leadership. Focused on mentoring junior consultants to build technical proficiency and support professional growth, fostering a high-performing team environment.

- Active contributor to business development through proposal preparation and marketing initiatives. Regularly represent the company at industry events, maintaining professional standards while promoting organizational expertise.

January 2023 – October 2025 **Nanyang Technological University** ***Research Fellow***
(Project: Risk-based Condition Assessment of Power Supply Assets and Investigation of Damaged Assets**)**

- Developed an enhanced health index methodology to improve the accuracy of condition assessment and remaining life prediction for power supply assets, e.g., power cables, transformers, switchgears, etc..
- Performed post-mortem studies on decommissioned equipment to identify end-of-life indicators, providing scientific validation for rule-based maintenance criteria.
- Conducted investigation of damaged assets (e.g., damaged transformers, failed power cables, etc.).

July 2021 – December 2022 **Nanyang Technological University** ***Research Fellow***
(Project: Distribution Cable Insulation Health Assessment**)**

- Executed laboratory and on-site polarization and depolarization current (PDC) tests on 6.6 kV and 22 kV XLPE power cables, correlating diagnostic parameters with insulation aging levels validated through microstructural analysis.
- Established a comprehensive insulation assessment framework aligned with IEC standards and CIGRE guidelines, reducing measurement costs while improving diagnostic reliability.

July 2020 – June 2021 **Harbin University of Science and Technology** ***Lecturer***

- Spearheaded the design and setup of a cable water tree aging test apparatus in strict compliance with DL/T 1070-2007 standards; fabricated all cable terminals and joints to execute the aging tests.
- Performed measurements on ultra-low frequency/power frequency loss factors and polarization/depolarization currents throughout the aging process; analyzed resultant data to investigate life assessment methodologies for water tree-aged cables.
- Co-developed course materials and instructed undergraduate students in laboratory settings. Guided students through experimental design and data analysis techniques.

August 2015 – May 2020 **Harbin University of Science and Technology** ***Ph.D Researcher***

- Led a research segment investigating the electrical and material properties of XLPE nanocomposites, incorporating various nanofillers (e.g., carbon black, silicon carbide) at different concentrations.
- Simulated and analyzed how nanofiller conductivity influences electric field distribution within HVDC cable insulation, providing insights for material design.
- Developed calculation models to quantify the non-relaxation polarizability, relaxation polarizability, and relaxation polarization intensity of nonlinear insulating dielectrics.

EDUCATION

Doctor of Engineering (PhD) in High Voltage and Insulation Technology
Harbin University of Science and Technology, China *2020*

Bachelor of Engineering (BE) in Electrical Engineering and Its Automation
Harbin University of Science and Technology, China *2014*

PROFESSIONAL AFFILIATIONS

- Professional Member of the Institute of Electrical and Electronics Engineers (IEEE), US
- Professional Member of the IEEE Power & Energy Society (PES), US

SELECTED PROJECTS

No	Project Description
1	One 22 kV/433V, 1.5 MVA transformer manufactured in 2006 experienced a blue phase failure in 2025. I am the Principal Investigator investigating the root cause of the transformer damage.
2	Flashover occurred at a 22kV cable termination that was connected to a voltage transformer (22kV/110V) in 2025, resulting in a complete power outage of the power supply system. I am the Principal Investigator investigating the root cause of the flashover failure of the 22kV cable terminal.
3	A stator bar failure occurred on a 13.8 kV, 158.8 MVA generator in 2024; and 14 additional bars had protection tape damage, along with other related defects. I am the Principal Investigator investigating the root cause of the failure and damage.
4	A fire incident occurred on a Generator Step-Up Transformer (23.5 kV/500 kV, 600 MVA) in 2024. I am one of the Principal Investigators investigating the root cause of the fire incident.
5	Failure of a 240MVA OLTC oil-immersed stepdown transformer in 2023, which sustained a flashover during operation and initiated a fire that razed the transformer and auxiliary equipment in the switchyard. I am one of the Principal Investigators investigating the root cause of the fire incident.