Petroleum Development Oman (PDO)

Project overview
PDO required the services of a specialised engineering company to carry out a technical online study regarding the integrity and remaining life assessment of over 1400 electrical assets in ten separate Oil & Gas production stations. The condition assessment team in Edif ERA worked with local company, Rukun Al Yaqeen International (RAYOMAN), to ensure PDO's requirements were met.

Edif ERA's role in the project was to:
• Audit RAYOMAN's online testing procedures
• Carry out visual inspections of the assets
• Analyse the results provided by RAYOMAN
• Produce a report and datasheets documenting:
  - Asset health
  - Asset remnant life
  - Asset risk index
  - Recommendations

Integrity assessment of electrical assets for PDO Gas, North Oil Directorate and South Oil Directorate

The client
Petroleum Development Oman (PDO) is the government-owned major Oil & Gas exploration and production company in the Sultanate of Oman. The Sultanate of Oman was ranked as the world's 25th largest producer of oil and the 26th largest producer of natural gas in 2013. PDO employs around 7,500 people and produces around 70% of the country's oil and almost 100% of the natural gas.

Client benefits
The implementation of electrical condition assessment provided PDO with major improvements in maintenance costs, unscheduled machine failures and repair down time. It also significantly reduced the health and safety risk associated with the requirement for regular intrusive maintenance and catastrophic asset failure.

The challenge
The project required a large variety of electrical assets to be assessed. Edif ERA has significant experience in the condition assessment and condition-based risk management of electrical assets. We employ staff who previously held technical specialist positions in manufacturing and power utility companies. This level of expertise means Edif ERA is particularly well placed to provide an independent analysis on the condition of:
• HV transformers, cables and switchgear
• HV and LV motors
• Generators
• Batteries, battery chargers and UPS systems
**Our approach**

Edif ERA provided a holistic condition assessment approach to understand the condition of the electrical assets on each of the PDO Oil & Gas production sites.

- Met PDO’s operational and health and safety demands
- Analysed the online test results provided by RAYOMAN
- Examined historical asset data
- Reviewed customers’ maintenance practices
- Scored asset criticality based on safety and production risk of failure

A datasheet was produced for each asset containing test results, asset specific recommendations, a health index, remnant life, and risk index estimation. A detailed report was also produced for each site which summarised the project findings and provided advice on improvements to engineering practices.

**The conclusion**

A number of critical actions were identified which needed to be carried out to ensure the future integrity of the assets analysed. Edif ERA strengthened its relationship with both PDO and RAYOMAN and provided them with an independent analysis of the condition of their electrical assets.