Optimization of Asset Management Plans for Electric Assets Portfolios

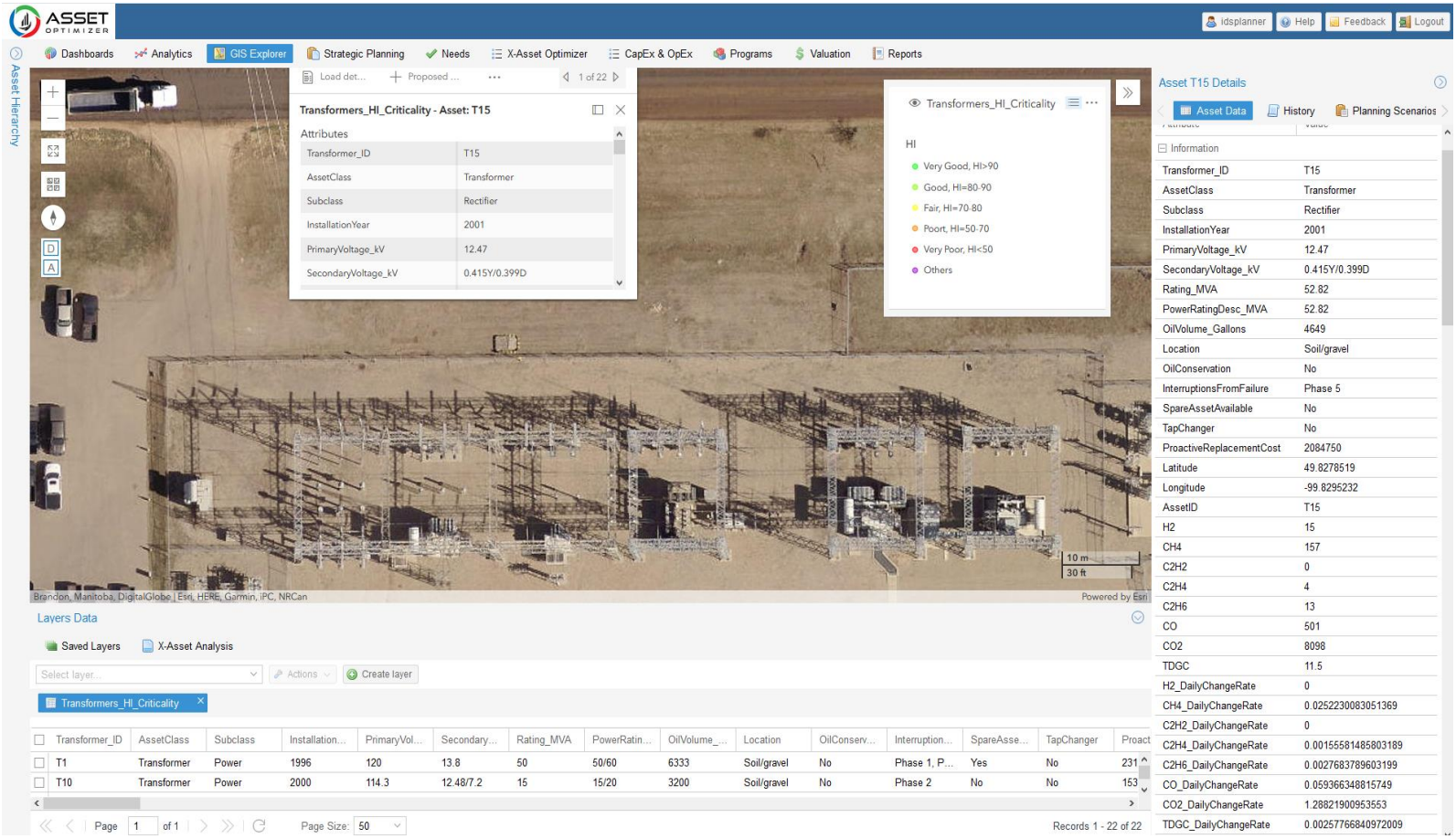
Summary

Client: Shermco Industries, Canada.
Project: Optimization of Risk-Based 10-Year Asset Management Plan for Transformers in an Industrial Plant.

Using its flagship Asset Optimizer™ GIS-centered cloud-based software, IDS has worked with Shermco Industries to assess and forecast the Health Index for a portfolio of power transformers using inspection and testing results, build predictive and risk models, and develop optimal 10-year asset management plan.

Challenge: Optimize Risk-Based Investment Plans of Transformers

Field inspections and testing results of power transformers provide critical information on the likelihood of failure, and guide decisions on the timing and type of rehabilitation or replacement actions. Efficient management of a large population of power transformers requires the development of proactive multi-year risk-based plans to maximize performance while reducing risks and lifecycle costs. To better serve its large utilities and industrial client base, Shermco needed to adopt an ISO 55000 compliant solution that can support detailed analysis of the transformers testing and inspection data, development of reliable data-driven predictive models to forecast transformers' health and risk of failure, and optimization of long-term asset management plans to ensure that scarce funding resources are invested on the right project at the right time.



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Solution: Asset Optimizer™

Asset Optimizer™ is uniquely positioned to meet the requirements for advanced decision analytics and asset management of electric assets. The software was used by IDS-trained Shermco staff to support detailed analysis of transformers inspection and test results, and the calculation of Health Indices considering a wide range of parameters such as dissolved gas analysis (DGA), oil quality, furan, power factor, load history, visual inspection, bushing condition, and age. Historical testing data was used to analyze historical performance trends and develop Weibull predictive models to forecast future performance and likelihood of failure of transformers. Criticality models were developed considering the consequence of a transformer failure with respect to safety, reliability, service interruption, and financial impact. Deterioration and criticality predictive models enabled accurate and reliable prediction of risks.

Cost and benefits models for two main interventions were defined: oil processing/refurbishment and transformer replacement. Multiple budget and performance target scenarios were then defined and used to generate optimal annual project lists that maximize system-level performance, minimize risk, and minimize lifecycle costs. Scenario trade-off analysis helped to quantify relationships between funding levels and performance and risk metrics, and enabled the development of optimized and defensible 10-year asset management plan for all transformers. Using a similar approach, lifecycle models and asset management plans for other electric assets, such as circuit breakers and conductors, can also be supported.

For More Information

To learn how Asset Optimizer™ can help your organization optimize long-range asset investment plans and make better decisions, contact us today at +1 (306) 790-1415 or visit www.ids.consulting

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