Leverage ABB’s vast transformer design and manufacturing experience to identify the condition of critical assets, determine actions that lower risk and optimize maintenance budgets. Fleet assessments provide optimal asset management that help extend transformer life and ensure the highest reliability possible.

The average life cycle of a power transformer is 40 years, while many installed assets are 50 or 60 years old. The aging infrastructure raises concern for increasingly crucial issues related to safety, reliability, and costs. In addition, rising energy demand and grid complexity are placing greater stress on transformer equipment.

Due to the long service life of these aging assets, many transformer operators do not have complete maintenance records and are faced with reduced maintenance budgets. Many maintenance activities are performed on a time-based or reactive schedule; and the increased risk of failures and life cycle costs is compounded with the shortage of experienced personnel to do the work.

An accurate fleet assessment helps asset managers to decide on an effective, low cost maintenance strategy and to define an optimized maintenance and replacement budget. Based on the condition of a transformer and its role in the grid, the program identifies units that require priority on the maintenance schedule and activities that may improve reliability.

**ABB Mature Transformer Management Program (MTMProgram™)**

A true assessment of a transformer fleet considers much more than the chronological age of a transformer. MTMProgram™ provides a consistent methodology for assessing all transformer assets individually. The assessment considers all factors that impact the life of a transformer including, but not limited to, condition, design, failure history, loading, maintenance, operating environment, and fault exposure.

The ABB Mature Transformer Management Program (MTMProgram™) four-step methodology:

1) Fleet Assessment – In this phase, analytical and statistical information about each transformer in the fleet is gathered and processed. Conditions from each transformer are then grouped into five different risk categories, as illustrated in the following figure. It is important that each condition be grouped so that cumulative effects may be considered for each of the five risk categories.
Each transformer is then individually categorized into one of three categories (normal, priority and urgent) based upon the calculated risk of failure. Normal assets require only standard maintenance procedures, priority assets require action to extend the transformer life or reduce the damaging effects of a failure, and urgent assets have the highest risk of failure and require immediate action to lower system impact.

2) Transformer design and condition assessment – For transformers identified with the highest risk of failure during the fleet screening, ABB employs a structured protocol developed by transformer design and operations experts to more thoroughly evaluate the condition of the individual transformer. This assessment combines input from the transformer design, historical data, operating history, ambient conditions and routine and advance diagnostic data.

3) Life profiling – By applying the results obtained from the assessments, appropriate actions are identified. A life evaluation can be done to confirm that appropriate actions are cost justified based on the remaining life of the transformer. Additionally, the MTMProgram™ provides information for the end user to develop a solid contingency plan that can determine return-to-service options for the high-risk units, ensuring effective failure management.

4) Implementation – The recommended actions can be implemented to achieve risk reduction, life extension and an overall health improvement of the fleet. Typical solutions include combinations of preventative and corrective maintenance, field repairs, retrofits, relocations, replacements, testing and advancing diagnostics, and factory repairs or remanufacturing.

ABB’s MTMProgram™ can provide the baseline for all future maintenance and equipment replacement actions to ensure the highest reliability possible.

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