GE Energy Management

Portable Transformer Loss and Heat Run Testing

fact sheet

Background

When transformers have quality or design issues, the result is often the overheating of internal components. Components that can potentially overheat include core iron, windings, leads, bus bars, and tap changers. The type of quality issue or design flaw will dictate exactly which internal component is experiencing excessive heating. When this overheating occurs, the oil within the transformer will begin to break down, generating combustible gasses. The gas that is generated depends on which component is overheating and how hot that component gets as each gas has very specific temperature dependence. When a transformer produces significant combustible gasses, a repair is usually indicated.

Why Repair in the Field?

On larger transformers, the cost for rigging and transportation to a repair facility can reach $500,000 – $1 million each way. In addition, the round trip transportation period can easily exceed three months. The transformer is also subject to shipping damage. This generates a lot of incentive to repair the transformer in the field. Often times, repairs can be affected in the field in less time and for less money than the transportation piece alone.

With GE's HV test programs, many times a repair can be isolated to a particular area of a winding or to a specific set of connections. Once the damaged area is located, simple field repairs can often be made that can minimize cost and allow the transformer back into service in a matter of weeks instead of months. For additional information on other GE HV field testing services such as portable induced testing or portable impulse testing, please contact your GE Energy sales person.

Field Testing

Testing the transformer under controlled conditions can determine the exact cause of gassing. Portable test equipment can be utilized to replicate the two modes of overheating (load related and voltage related).

GE's portable induced voltage trailers have long been a leader in field voltage related testing. Now comes the ability to perform complete no load loss, load loss, and heat run tests on your transformer anytime, anywhere. GE's portable systems include variable voltage sources, over 100 MVAR of capacitance, and loss measuring—all at your substation.

Testing can help GE engineers locate and determine the type of repair that may be needed. An internal inspection can confirm that analysis and lead to a field repair of one of your major transformers in much less time than shipping to a repair facility.

After repairs are complete, the same equipment can be utilized to confirm that proper repairs were made.

For more information, contact your local GE Energy office,
call 1-888-GE4-SERV or 540-378-3280,
or visit www.geindustrial.com/services

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