

Grid Solutions

TRANSFORMER SERVICES



GE VERNOVA

Power transformers constitute a large capital expenditure and are one of the most critical components in electrical systems. Over the equipment long lifecycle, operators must enhance the availability, reliability, and safety of transformers, and avoid accelerated irrecoverable ageing of its insulation system. Grid Solutions at GE Vernova provides advanced maintenance strategies to help customers minimize unplanned outages and major failures and to adapt transformers to evolving operation conditions.

Our Field Services engineers located close to customer sites, leverage our extensive in-house field service, product design and R&D expertise. Customers benefit from a local infrastructure including on-site mobile workshops, advanced testing capabilities, dedicated refurbishment facilities, and oil laboratories.



Our Advantage

With and extensive experience in servicing up to 800kV and 2750 MVA transformers in major power networks worldwide, Grid Solutions is one of the world leaders in Transformers Services. As a pioneer in the field, our expertise extends to all types of applications from power generation and transmission to electro-intensive industrial applications.

A World Leader in Transformers for More Than 100 Years

Grid Solutions at GE Vernova has dedicated resources for servicing transformers on the five continents, with a current capability of 40+ service centers, 3 oil labs and 6 training centers. This global footprint, coupled with 500+ field service experts around the globe, enables us to offer high-quality tailored services for a wide variety of applications and geographical locations.

Transformer maintenance and services

Assembly and Disassembly Services

Power transformers are usually transported disassembled with all detachable accessories removed from the unit due to route restrictions. Grid Solutions assembly and disassembly services consist of the prompt and complete field assembly and dismantling of all components of the transformer. The process includes a thorough inspection of the interior of the main tank and accessories to check for any damage to the equipment that may have occurred during transportation. The process ends with a pressure test to verify that the transformer is completely sealed following assembly.



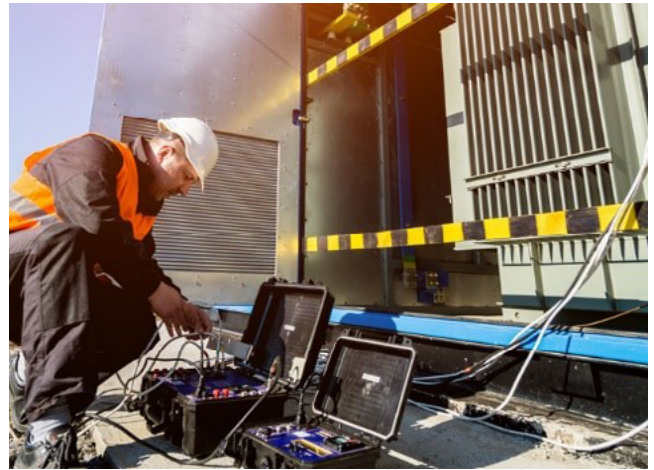
Oil filling, filtration and analysis

When transformers are shipped without oil, and once the assembly process has been completed, excess moisture must be extracted from the insulation. The process begins with the dew point measurement in order to obtain the insulation's moisture content. If it is greater than 0.5%, a drying process is performed according to Grid Solutions Installation, Operation and Maintenance Manual. Then a vacuum oil fill process is performed at a controlled rate. The oil is tested prior to processing, and then oil filling can take place. Transformers shipped oil filled does not require this process.



Field Testing

Electrical tests are performed to the transformer to verify its integrity after it has been transported, assembled, dried and oil filled. These are performed according to Grid Solutions Installation, Operation and Maintenance Manual plus any agreed customer request. Examples of these tests are: insulation resistance (windings, core, and frame), ratio, and power factor. The oil is also tested at the field (power factor, dielectric strength, etc) and once the transformer is oil filled, a sample is sent to obtain a detailed chemical analysis and DGA. These tests are performed and evaluated by experienced personnel comparing the results with the factory tests. Some optional tests that could be performed are frequency response, vibration, transients, etc.



Spare parts

Like all equipment, many transformer parts and accessories will eventually need to be replaced during the transformer operating life. In order to meet our customer needs, Grid Solutions has a wide range of spare parts in stock available for immediate delivery and with the confidence that the exact part required for your equipment is being delivered. If a part is not in stock, it can generally be obtained with very competitive delivery times. Grid Solutions also offers the specialized installation of these parts.



Failure investigation

In the event a transformer fails during operation, the two most important tasks that need to be performed are:

1. Locate and install a replacement as soon as possible.
2. Perform a complete failure analysis to determine the root cause of the problem.

Grid Solutions has developed a set of tests (electrical and oil analysis), which can be performed at site and are used to assess abnormalities, and define an action plan for the transformer repair or replacement.



Site repair and overhauling

In the event that your transformer requires a major repair, Grid Solutions has the experienced personnel and the resources to work at site and correct the defects. Some repairs could be exterior, such as installation of spare parts (bushings, gauges, etc.), painting, correcting or revising the control system. The interior of the transformer can be inspected to locate and repair areas, which generate gases, partial discharges or excessive noise, re-tightening of winding packages, or replace the tap changer.



Workshop repair and major overhauling

Grid Solutions has a service centers, staffed with qualified personnel and testing capabilities to provide prompt service with guarantees. Our Service Centers meet high-level quality and are technically supported by our design and technology departments at the Grid Solutions factory as required.



Condition assessment

After several years in operation, it is important to evaluate the condition of the transformer to determine options to extend the life of the asset or to minimize the probability of a future failure. Grid Solutions has the knowledge, experience, design information, and trained personnel capable to perform such studies. If needed, Grid Solutions can incorporate analysis of networks, power systems, and transient events that may impact the integrity of the specific transformer application.

Grid Solutions has a combination of factory and field experts within our manufacturing facilities. The evaluation is a complete study, which performs a diagnosis of key elements of the transformer and its use. This evaluation typically results in an estimate of the remaining productive life and the recommended maintenance or other actions relative to improving the reliability or increasing its useful life.

Digital Condition Assessment

This program provides an accurate status of the health of the transformer, it is applicable to all transformers types and brands and provides a real-time view of all functions including:

- Oil quality and Dissolved gas analysis
- Bushings
- Partial discharge
- Temperatures
- On-line tap changers



Training

Maintenance of a power transformer is not simple, Grid Solutions offers courses taught by our experts and cover the most important aspects of the transformer operation and maintenance. Written material is provided to each participant, and the courses contain a practical hand-on section where the participants consolidate their learning.

Grid Solutions supports the planning and execution of all its services, not only in its extensive and proven experience with transformers handling, but also with solid technical references such as international norms, technical literature, industrial practices and our own research and developmental activities.



Getting Started

Schedule your discovery session and experience Grid Solutions Transformer's value-added services.

Name:

Position:

Email:

Phone:



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