During the 60s and 70s, most industrial transformers made in Norway were delivered with the National Industri type tap changers. The manufacturing of these tap changers stopped in 1979. Today ABB has a tap changer department in Drammen able to serve these units and manufacture necessary spare parts.

Even though the components are reliable quality products, ABB has a solution ready for replacing the tap changers with a new modern design.

**Tap changer operation**
In general you find the transformers only moving parts in the tap changers. This means that some of the parts will be subjected to tear and wear. The contacts where the breaking operation take place are subjected to arcing carbonizing the oil and wearing the contact surface. Deposit layers on the contacts may lead to elevated temperatures in the contacts, again leading to more carbonizing of the contacts. Finally the formation of coke on contact surfaces can lead to formation of free gas, and potentially a flashover and thus catastrophic transformer failures.

**Extending the service intervals**
For demanding transformer operation as in furnace operation the tap changer will be constantly in operation. The need for interval service will demand rather frequent service. Demands to reduce outage time will also drive towards a wish for longer intervals between services. ABB has recently investigated possible solutions for replacing the National Industri tap changers with new and modern technology, and the first units are re-built to meet new requirements.

**The solution**
ABB has developed a retrofit solution for exchanging the National Industri type tap changers with new technology. The portfolio also includes exchange to vacuum type breaker technology, a well-proven solution with huge savings potential for maintenance. A thorough study of remaining life of the windings is performed, to make sure that the windings are in good condition and suited for many years safe operation. If the winding insulation is heavily aged, new sets of High Voltage windings will be offered.

The tank, cover and the regulating winding exits would be modified to fit the new tap changer solution. A new motor drive unit will be adapted with customized customer interphase. The active part (core and windings) will be retightened and dried in a vapor phase drying plant to ensure the best quality and longest possible life for the transformer. A full FAT (Factory Acceptance Test) in accordance with International Transformer Norms (IEC/ ANSI etc.) will ensure that the transformer will behave well in service.
Reliable transformers, less need for maintenance
By changing the most maintenance required transformer components the service intervals can be prolonged. In addition to the savings in maintenance cost the transformer reliability will increase as old tap changers are counting for many transformer failures. If you want to discuss how to minimize risk for failure and how to prolong the service intervals, call ABB today!

Reference Story
Single-phase Shell form furnace transformer
13 MVA - 12kV/140V-270V

Customer need
- Refurbishment of 35 year old transformer
- Reduce risk of tap changer failure
- Reduce maintenance cost

ABB Solution
- National Industri retrofit solution with Vacuum tap changer
- Drying/cleaning and re-establish the winding pressure
- Paint of tank/cover

Customer Value
- Reduction in tap changer maintenance cost
- Expected “new life” transformer, 10-15 year
- Risk reduction, unplanned outage

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Contact Center offers you a single point of contact for all your inquiries to ABB. Your inquiries will be routed to correct person or registered for further follow-up.

Customers with a service agreement may contact our dedicated Service Desk on a separate number.