Increasing the capacity of an end-of-life transformer at an affordable price is now possible with ABB’s Engineering Solutions.

Ten years ago, ABB began to develop a methodology for evaluating, in the field, the status of single and also whole fleets of transformers, using non-invasive methods wherever possible. The methodology integrates knowledge accumulated by ABB over the past hundred years and involves more than thirty different brands.

This Methodology, ABB Mature Transformer Management Program (MTMP™), has a modular structure, allowing the level of investigation to be adapted to a customer’s specific needs and the respective budget. Evaluations can be carried out progressively, beginning with a condition assessment (step 1), then moving onto life assessment (step 2) and, finally, to a highly selective advanced evaluation or Risk Assessment (step 3).

**Customer needs**
The customer needed to increase plant production capacity but was limited by the 4 step down transformers. The transformers were presently 6.67 MVA and needed to have the rating increased to 8.0 MVA.

**ABB’s response**
The Westinghouse transformers were part of the ABB legacy so all the original design files were retrieved from the archive. ABB went to site to meet the customer and performed a condition assessment of the transformers. An engineering study was then done to calculate the thermal performance which confirmed the 8.0 MVA rating was possible with cooling modifications.

The customer decided to proceed with the up-rating and modifications. New fan cooling kits and electronic temperature monitors were supplied. An installation procedure was developed that minimized the outage time required. ABB supervised the installation of the new cooling packages.

**Customer benefits**
Although the transformers were 40 years old, the condition and design assessment confirmed there was significant life remaining in the transformers and that this was a cost effective solution compared with the purchase of new transformers. This approach also allowed the customer to increase the capacity without enduring a major outage and quickly use the extra available power instead of waiting for the new transformers to be installed. Also this solution did not need any extra civil work in the substation therefore minimized the overall costs.
ABB’s MTMP™ solution provides valuable information to support:

- Assets managers to decide upon the best maintenance strategy and define the associated maintenance and replacement budget.
- Maintenance managers to select the right units to be maintained and implement the needed maintenance actions in order to increase the reliability while optimizing their maintenance budget by addressing the units based on their condition.

For more information please contact:

ABB Inc.
201 Westcreek Boulevard, Brampton,
Ontario, L6T 5S6, Canada
Phone: +1 905 460 3210
Fax: +1 905 460 3007
E-Mail: ed.g.tenyenhuis@ca.abb.com

www.abb.com/transformers

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