



CLEAN OIL
BRIGHT IDEAS

Insulating Oil Power Plant Transformer

CJC™ Application Study

Application Study
written by:

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CUSTOMER

Københavns Energi
(Copenhagen Energy), Denmark.

THE SYSTEM

Transformer: Brush.
Oil Brand: Texaco Nytro 10 X oil.
Volume Oil: 7.58 ton (8,880 liters).

THE PROBLEM

A high water content in a transformer's oil implies an equally large volume of water bound in the coil insulating cellulose in the transformer. As the water combined with oxygen causes an accelerated decomposition of the paper, it is necessary to dry the paper by drying the oil. The water passes slowly from the paper cellulose and into the oil, which is why filtration and drying of the oil must be a continuous process over a longer period of time.

THE SOLUTION

Copenhagen Energy decided to install a **CJC™ V30 Vacuum Filter unit**, drawing the oil from the lower part of the transformer. After fine filtration and vacuum treatment the clean, dry oil is returned to the transformer expansion tank. The CJC™ V30 is designed and approved for filtering the transformer oil while the transformer is in operation.

THE RESULT

The water content of the oil on the test transformer was reduced from 21 ppm to 4 ppm over 18 months and at an average oil temperature of 40°C. Reducing the water content in the oil made water pass from the paper to the oil reducing the water content in the paper from 3.3% to 1.6% (theoretical) i.e. eliminating 13 ltr. of water from the transformer during the test period.



CJC™ V30 Vacuum Filter Unit

THE RESULT

Week	Water content in oil	Water content in paper
0	21 ppm	3.3 %
2	17 ppm	3.1 %
7	9 ppm	2.8 %
13	11 ppm	2.3 %
17	7 ppm	2.0 %
36	10 ppm	1.8 %
62	4 ppm	1.6 %

COMMENTS

Bent Mau, Maintenance Manager:

The achieved results are extremely satisfying. V30 has proven it self as very easy to operate and maintenance friendly, which is a must in our line of business.