

March 6, 2008

**T&D EUROPE position paper on  
Study for preparing the first Working Plan of the EcoDesign Directive  
Report for tender No.: ENTR/06/026, published on Nov. 22<sup>nd</sup>, 2007**

T&D EUROPE is the European Association of the Electricity Transmission & Distribution Equipment and Services Industry whose Members are the European national associations representing the interests of the electricity transmission and distribution manufacturing and product derived solutions. T&D EUROPE results from the merger on the 6<sup>th</sup> of March 2008 of two former European sector committees, CAPIEL HV and COTREL. It represents the following countries: Austria, Belgium, France, Germany, Italy, Portugal, Spain, and UK.

T&D EUROPE defines transformers as those having a voltage greater than 1000 Volts. These transformers are described in EN 60076-1.

They are typically sold to operators of networks concerned with the transmission and distribution of electricity and also to industrial companies using large quantities of electricity.

In T&D EUROPE, transformers industry represents

- Over 80 % of European Union transformer manufacturing capacity,
- Over 15,000 direct employees,
- Order Intake circa 2 000 Millions €, exporting 25% outside European Union

## I. Introduction

Our industry has been active in improving the energy efficiency performance of products. T&D EUROPE therefore welcomes the European Commission in its action of achieving higher efficiency of energy consuming products. In accordance with

EcoDesign Directive (2005/32/EC), further product groups shall be identified for consideration as priorities for the adoption of implementing measures. The final report, which has now been published, awards the overall second highest potential for energy efficiency improvement to transformers, of all evaluated product groups.

## II. Comments on final report

T&D EUROPE wishes to comment on the report as follows:

- Differentiated assessment of product group transformers is missing

The EUP report considers transformers in the range of  $\leq 1\text{kVA}$  up to  $>100\text{ MVA}$  as one product group.

Whilst the physical principle of operation is the same for all transformers, there are completely different operational requirements for transformers, depending on the usage, voltage and power that determine the design and the efficiency.

According to common practice, transformers should to be differentiated as follows:

Range up to 25 kVA : Small transformers

Range from 25 kVA -20 MVA : Distribution transformers

Above 20 MVA : Power transformers

T&D EUROPE represents, among others, the manufacturers of distribution and power transformers exclusively.

The report uses as its information source recent studies on distribution transformers. The stock of all transformers including small transformers represents 202.408.000 units, on which the report calculation is based. However, distribution and power transformers represent approximately 5.000.000 units.

Studies or specific consideration of larger distribution and power transformers seem not to be part of the study; nevertheless these power ranges also are included.

## - Consideration of use profiles

Distribution and power transformers are customised products and are mainly used in power generation and in power grids at low, medium and high voltage levels. In that area of usage, the efficiency of a transformer depends to a large extent on its use profile. The EUP report does not consider use profiles specifically.

## - Consideration of other designs and technologies

In addition there are certain other design and technology considerations of high importance:

- Noise levels,
- Weights and dimensions (relevant for transportation and logistics),
- Type transformers (dry type of liquid filled transformers).

## - Long usage time cannot be generalised

The EUP report refers to the high environmental impact of the used materials due to their long-term usage.

As distribution and power transformers are always energised (24hours/7days) and are installed on the network for long periods of time often in excess of 30 years, the impact on energy efficiency can be improved by reduction of no load losses and load losses.

### *Note:*

*No load losses are present as soon as the transformer is energised.*

*Load losses are only present when the transformer is supplying load.*

## - Definition of minimum standards for loss evaluation criteria necessary

The manufacturers represented in T&D EUROPE see potential to reduce energy losses in the usage of transformers in the field of both power transmission and distribution, and following criteria should be considered:

- Number of old units installed
- Efficiency
- Cost
- Delivery time
- Evaluation criteria used by buyers
- Standards available
- Raw materials available
- Technology
- Manufacturing capacity
- .....

The potential reductions can be realised in the distribution and transmission sector, by substituting old high loss transformers with new ones of higher efficiency (dividing by more than 2 the level of no load losses) that utilise modern materials.

In this power range, manufacturers offer transformers that are designed in accordance with the users evaluation criteria. Consequently the transformer losses may not be optimised with respect to energy efficiency.

Across the EU, loss evaluation differs greatly from user to user even within individual Member States. It would be beneficial and may be necessary to define minimum standards for loss evaluation criteria e.g. EUR/kW against which transformers are purchased.

#### - Further relevant characteristics of Distribution and Power transformers

Independent of the above mentioned aspects there are certain criteria that characterises distribution and power transformers:

- Usage: The products are mainly sold to Business to Business customers and rarely to private customers for end-use,
- The transformers have to be considered in the context of a network system and not as a stand-alone product,

- The disposal after the end of life time does not follow the pattern of private waste disposal but is managed professionally. Approximately 99% of a distribution or power transformer can be recycled,
- The incentive to optimise energy efficiency of transformers varies country to country depending of the purchase cost of the energy.

## Summary

The manufacturers represented in T&D EUROPE propose a further differentiation between small, distribution and power transformers and the individual treatment of each group in the course of developing higher energy efficiency within the EU in general and in particular the progress of the EcoDesign Directive.

T&D EUROPE is in favour of reducing the level of losses of the transformers to optimize the energy efficiency.

T&D EUROPE wishes to act as a cooperative and constructive partner to the European Commission and its consultants in discussing and promoting energy efficiency within the power industry.