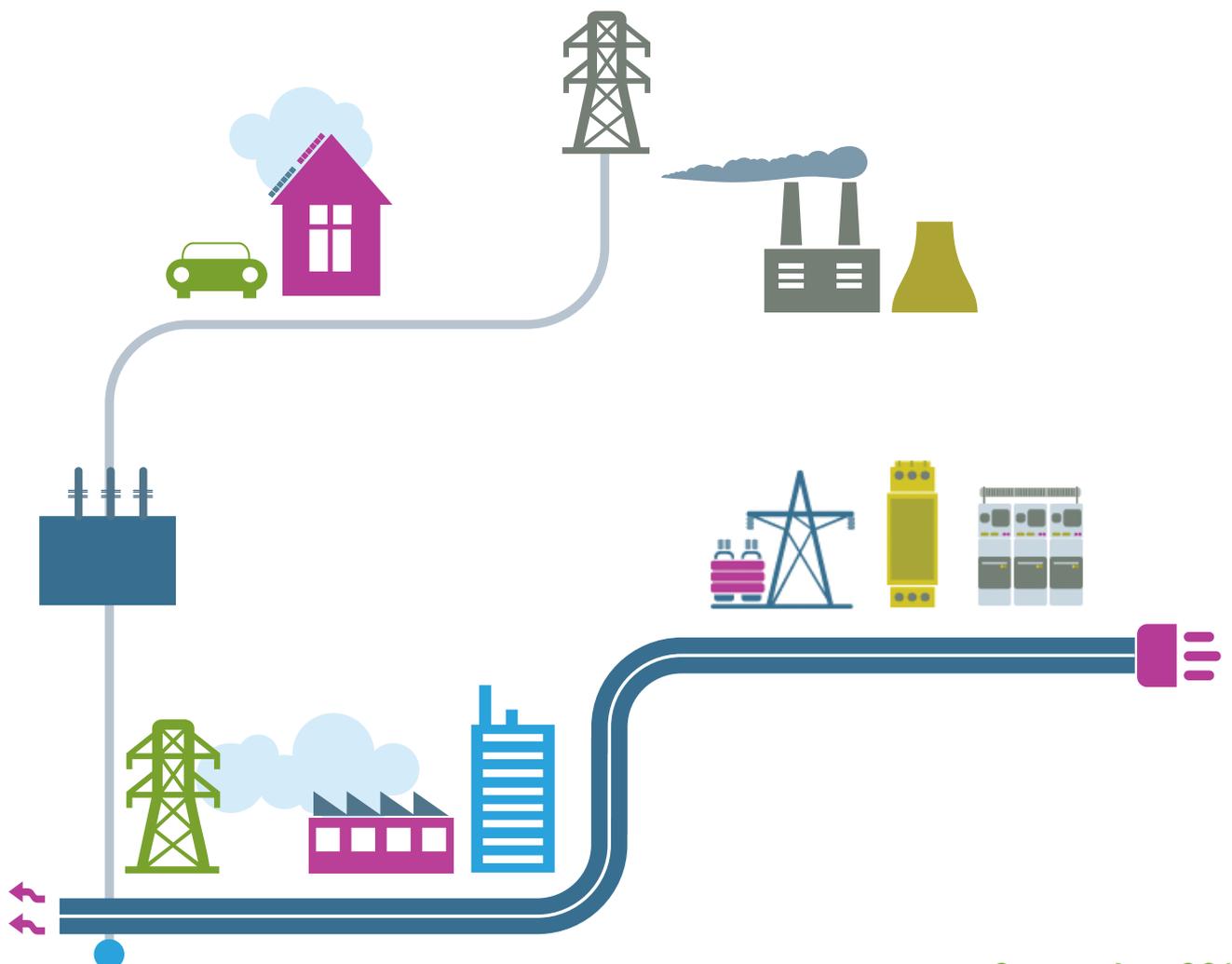


BEAMA NETWORKS – ECO DESIGN DIRECTIVE FOR TRANSFORMERS: REFURBISHED EQUIPMENT



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ABOUT BEAMA

BEAMA represents manufacturers of electrical infrastructure products and systems from transmission through distribution to the environmental systems and services in the built environment, with 200 members ranging from SMEs to large multinationals.

We work with our members to ensure their interests are well represented in the relevant political, regulatory and standardisation issues at UK, EU & international levels.

BEAMA member products provide a sustainable, safe, efficient and secure UK electrical system. We support our members in ensuring that the UK has a strong electrotechnical industry which is recognised as an essential part of modern society and brings invaluable economic, social and environmental benefits.

Our Networks Sector is made up of members with interests in network products, transformers, switchgear, communications, automation, relays, smart grid, and related safety and energy supply and control technology. As part of the networks section of BEAMA, our aim is to explore and develop opportunities, provide technical services and to foster sustainable growth in new markets.

This paper was produced in coordination with the BEAMA Principal Products Section which has membership from the following organisations:



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Repaired/Refurbished Transformers and the Eco Design Directive

The Eco Design Regulations for new Transformers (No 548/2014) came into force on the 11th June 2014, setting in place mandatory levels of efficiency from 1st July 2015. Despite initial confusion over the status of transformers placed into service prior to the regulation, the mandatory requirements specifically refer to transformers placed on the market for the first time.

Despite this, a degree of uncertainty still remains with regard to the use of repaired, refurbished, recommissioned and rented power transformers manufactured and placed into service prior to the regulation. Whilst specific exemptions to compliance are defined within the regulation, no reference whatsoever is made to the use of such equipment.

The first amendment to the regulation is expected to clarify the situation, however this is unlikely to appear for at least two years, consequently BEAMA and a number of UK Transformer companies have been actively involved in clarifying the legal position with regard to this aspect of the current directive for the benefit of UK manufacturers, suppliers and purchasers.

Refurbished Transformers

Refurbishment generally concerns the replacement of existing components that are either damaged or at the end of their operational life, allowing a cost-effective extension to the operational service life of the transformer.

The refurbishment of a transformer is also likely to reduce the span from order placement to delivery in comparison to a new transformer.

Repaired Transformers

Repairs are usually carried out on transformers that have suffered damage that is not considered catastrophic, often minimising both the cost for the owner and down time of the system for the user.

Products which have been repaired (or refurbished) without changing the original performance, purpose or type, are not considered to be new products. As a consequence these transformers do not need to undergo conformity assessment.

Re-Commissioned Transformers

Owners may consider utilising a transformer that has been decommissioned prior to the end of its operational service life. The alternative to recommissioning a serviceable transformer would be to scrap it, resulting in unwanted cost for the owner and a negative impact environmentally.

Rental Transformers

A rental transformer placed on the market before the regulation came into force need not be compliant and this remains the case if such a transformer were to be subsequently repaired or refurbished without modifying the performance.

A rental transformer manufactured and placed on the market after the enforcement of the regulation must be eco-design compliant.

Re-Engineered Transformers

Any transformer that is re-engineered to the extent that the rating or performance is modified e.g. the retrofitting of pumps or cooling fans must comply with the Eco Design regulation.

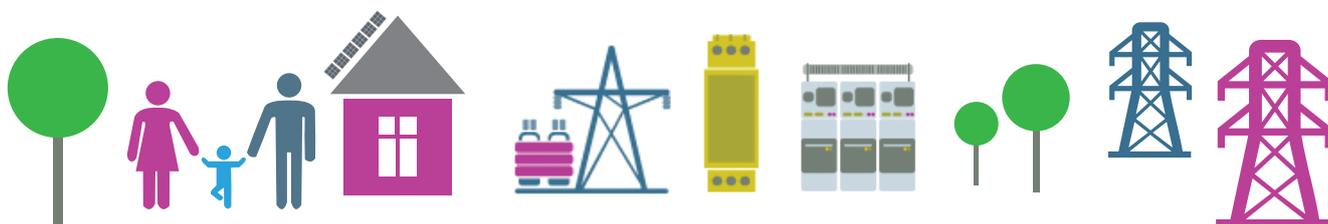
Life Expectancy and Energy Efficiency

The topic of future life expectancy will be a key factor in deciding how to proceed when considering the refurbishment, repair or replacement of a transformer. Similarly, the justification for increasing commercially viable energy performance is also significant when deciding the best course of overhaul activity.

If a transformer is repaired neither energy performance nor life expectancy would be improved.

A refurbished transformer would generally involve replacing components that form part of the critical ageing path of the transformer, resulting in increased operational life expectancy. The efficiency of the transformer would however remain unchanged.

A re-engineered transformer would increase both the energy efficiency and operational life expectancy, replacing the active part with one providing enhanced energy performance. If the energy performance or the rated power of the transformer are modified, the National Surveillance Authority must regard the equipment as being subject to Eco design regulations.



Summary

Repaired or refurbished products are normally considered to have already been placed on the market unless significant change or modification to the purpose of the product has taken place, in which case it should be considered a new product.

BEAMA strongly recommend that the owner evaluates the cost of repair/refurbishment, considering the Total Cost of Ownership by taking into consideration not only the primary cost of the transformers but also the capitalised cost of losses. Where justified, the use of existing 'pre Eco Design' transformers upholds the primary intention of a European Directive that was created not only to save energy by regulating the efficiency parameters of new equipment but also to minimise wastage.

The expected amendment to the regulation should eventually clarify the position but in the meantime Transformer manufacturers and suppliers may continue to refurbish, repair and sell or rent transformers placed on the market prior to the enforcement of the regulation providing the original performance, purpose or type has not been changed.



