# Commission Regulation (EU) 2019/1783 of 1 October 2019 amending Regulation (EU) No 548/2014 on implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to small, medium and large power transformers (Text with EEA relevance)

## COMMISSION REGULATION (EU) 2019/1783

## of 1 October 2019

## amending Regulation (EU) No 548/2014 on implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to small, medium and large power transformers

## (Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 setting out a framework for the setting of ecodesign requirements for energy-related products[(1)] and in particular Article 15(1) thereof,

Whereas:

(1) Article 7 of Commission Regulation (EU) No 548/2014[(2)] requires the Commission to review that Regulation in the light of technological progress and present the results of this review to the Consultation Forum in 2017.

(2) The Commission has carried out a review study that analysed the specific aspects set out in Article 7 of Regulation (EU) No 548/2014. The study was undertaken together with stakeholders and interested parties from the Union and the results have been made publicly available.

(3) The study confirmed that the impact of energy consumption during the use phase on the Global Warming Potential remains dominant. The analysis made did not provide sufficient evidence to support proposing environmental requirements other than a minimum energy performance.

(4) The study confirmed that Regulation (EU) No 548/2014 has had a positive effect on the efficiency of power transformers being placed on the market, and found that available transformer models can fulfil minimum requirements set in Tier 1 (July 2015) without difficulties.

(5) It is generally recognised that the most appropriate method to optimise transformer designs in order to minimise electricity losses continues to be the valuation and capitalisation of future losses using proper capitalisation factors for load and no load losses in the tendering process. However, for the purposes of product regulation only the use of prescribed values for minimum efficiency or maximum losses is feasible.

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(6) The study also confirmed that for manufacturers there are no major technical barriers to manufacturing transformers compliant with the minimum requirements set out in Tier 2 for entry into force in July 2021.

(7) The study analysed the economic viability of transformers compliant with minimum requirements set out in Tier 2 applicable as of July 2021 and found that lifecycle costs for compliant medium and large power transformers are always lower than Tier 1 compliant models, when these are being put into service in new installation sites. However, in specific situations where medium power transformers are being installed in existing urban substation locations, there can be space and weight constraints that affect the maximum size and weight of the replacement transformer to be used. Therefore, when the replacement of an existing transformer is technically infeasible or entails disproportionate costs, a regulatory relief should be justified.

(8) An existing regulatory exemption for the replacement of large power transformers related to disproportionate costs associated with their transportation and/or installation should be complemented by an exemption for new installations, where such cost constraints are also applicable.

(9) Experience shows that transformers may be held in stock by utilities and other economic actors for long periods of time before they are installed at their final sites. It should however remain clear that compliance with applicable requirements should be have been demonstrated either when the transformer is placed on the market or when it was put into service, but not both.

(10) The existence of a market for the repair of transformers makes it necessary to provide guidance on the circumstances under which a transformer that has undergone certain repair operations should be considered equivalent to a new product and therefore it should comply with the requirements set out in Annex I of this Regulation.

(11) To improve the effectiveness of this Regulation and to protect consumers, products that automatically alter their performance in test conditions to improve the declared parameters should be prohibited from being placed on the market or put into service.

(12) To facilitate verification testing market surveillance authorities should be allowed to test, or witness the testing of, larger transformers at premises such as those of the manufacturer.

(13) Experience gained in implementing Regulation (EU) No 548/2014 has revealed the existence of national deviations in standard voltages in electricity distribution grids in certain Member States. These deviations justify different threshold voltage levels in the categorisation of transformers, and they inform what minimum energy performance requirements should be applicable. Therefore, the inclusion of a notification mechanism to provide publicity for specific situations in Member States is justified.

(14) The measures provided for in this Regulation are in accordance with the opinion of the Committee established by Article 19(1) of Directive 2009/125/EC,

HAS ADOPTED THIS REGULATION:

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*Article 1*

Regulation (EU) No 548/2014 is amended as follows:

(1) Article 1 is replaced by the following:

*Article 1*

**Subject matter and scope**

1 This Regulation sets out ecodesign requirements for placing on the market or putting into service power transformers with a minimum power rating of 1 kVA used in 50 Hz electricity transmission and distribution networks or for industrial applications.

This Regulation shall apply to transformers purchased after 11 June 2014.

2 This Regulation shall not apply to transformers specifically designed for the following applications:

a instrument transformers, specifically designed to transmit an information signal to measuring instruments, meters and protective or control devices or similar apparatus;

b transformers specifically designed and intended to provide a DC power supply to electronic or rectifier loads. This exemption does not include transformers that are intended to provide an AC supply from DC sources such as transformers for wind turbine and photovoltaic applications or transformers designed for DC transmission and distribution applications;

c transformers specifically designed to be directly connected to a furnace;

d transformers specifically designed to be installed on fixed or floating offshore platforms, offshore wind turbines or on board ships and all kinds of vessels;

e transformers specifically designed to provide for a situation limited in time when the normal power supply is interrupted due to either an unplanned occurrence (such as a power failure) or a station refurbishment, but not to permanently upgrade an existing substation;

f transformers (with separate or auto-connected windings) connected to an AC or DC contact line, directly or through a converter, used in fixed installations for railway applications;

g earthing or grounding transformers specifically designed to be connected in a power system to provide a neutral connection for earthing either directly or via an impedance;

h traction transformers specifically designed to be mounted on rolling stock, connected to an AC or DC contact line, directly or through a converter, for specific use in fixed installations for railway applications;

i starting transformers, specifically designed for starting three-phase induction motors so as to eliminate supply voltage dips and that remain de-energised during normal operation;

j testing transformers, specifically designed to be used in a circuit to produce a specific voltage or current for the purpose of testing electrical equipment;

k welding transformers, specifically designed for use in arc-welding equipment or resistance-welding equipment;

l transformers specifically designed for explosion-proof applications in accordance with Directive 94/9/EC of the European Parliament and of the Council[3] and underground mining applications;

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m transformers specifically designed for deep water (submerged) applications;

n medium Voltage (MV) to Medium Voltage (MV) interface transformers up to 5 MVA used as interface transformers used in a network voltage conversion programme and placed at the junction between two voltage levels of two medium voltage networks and that need to be able to cope with emergency overloads;

o medium and large power transformers specifically designed to contribute to the safety of nuclear installations, as defined in Article 3 of Council Directive 2009/71/Euratom[(4)];

p three-phase medium power transformers with a power rating below 5 kVA;

except as regards the requirements set out in point 4(a), (b) and (d).of Annex I to this Regulation.

3 Medium and large power transformers, regardless of when they were first placed on the market or put into service, shall be reassessed for conformity and comply with this Regulation, if they are subject to all of the following operations:

a replacement of the core or part thereof;

b replacement of one or more of the complete windings.

This is without prejudice to the legal obligations under other Union's harmonisation legislation that these products could be subject to.;

(2) Article 2 is amended as follows:

(a) points (3) and (4) are replaced by the following:

(3) "medium power transformer" means a power transformer with all windings having rated power lower than or equal to 3 150 kVA, and highest voltage for equipment greater than 1,1 kV and lower than or equal to 36 kV;

4 "large power transformer" means a power transformer with at least one winding having either rated power greater than 3 150 kVA or highest voltage for equipment greater than 36 kV;;

(b) point (7) is replaced by the following:

(7) "medium power pole-mounted transformer" means a power transformer with a rated power of up to 400 kVA suitable for outdoor service and specifically designed to be mounted on the support structures of overhead power lines.;

(c) the following points (17) to (22) are added in Article 2:

(17) "declared value(s)" mean the values given in the technical documentation pursuant to point 2 of Annex IV to Directive 2009/125/EC, and where applicable, the values used to calculate these values;

18 "dual voltage transformer" means a transformer with one or more windings with two voltages available in order to be able to operate and supply rated power at either of two different voltage values;

19 "witnessed testing" means actively observing the physical testing of the product under investigation by another party, to draw conclusions on the validity of the test and the test results. This may include conclusions

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on the compliance of testing and calculations methods used with applicable standards and legislation;

20 "factory acceptance test" means a test on an ordered product where the customer uses witnessed testing to verify the product's full accordance with contractual requirements, before they are accepted or put into service;

21 "equivalent model" means a model which has the same technical characteristics relevant for the technical information to be provided, but which is placed on the market or put into service by the same manufacturer or importer as another model with a different model identifier;

22 "model identifier" means the code, usually alphanumeric, which distinguishes a specific product model from other models with the same trade mark or the same manufacturer's or importer's name.;

(3) Article 3 is replaced as follows:

The ecodesign requirements set out in Annex I shall apply from the dates indicated therein.

If threshold voltages in electricity distribution networks deviate from the standard ones across the Union[(5)], Member States shall notify the Commission accordingly, so that a public notification can be made for the correct interpretation of Tables I.1, I.2, I.3a, I.3b, I.4, I.5, I.6, I.7, I.8 and I.9 in Annex I.;

(4) Article 4 is replaced as follows:

*Article 4*

**Conformity assessment**

1 The conformity assessment procedure referred to in Article 8 of Directive 2009/125/EC shall be the internal design control system set out in Annex IV to that Directive or the management system set out in Annex V to that Directive.

2 For the purposes of the conformity assessment pursuant to Article 8 of Directive 2009/125/EC, the technical documentation shall contain a copy of the product information provided in accordance with point 4 of Annex I, and the details and the results of the calculations set out in Annex II to this Regulation.

3 Where the information included in the technical documentation for a particular model has been obtained:

a from a model that has the same technical characteristics relevant for the technical information to be provided but is produced by a different manufacturer; or

b by calculation on the basis of design or extrapolation from another model of the same or a different manufacturer, or both;

the technical documentation shall include the details of such calculation, the assessment undertaken by the manufacturer to verify the accuracy of the calculation and, where appropriate, the declaration of identity between the models of different manufacturers.

4 The technical documentation shall include a list of all equivalent models, including model identifiers.;