READINESS AND PREPARATORY SUPPORT

DISTRIBUTION TRANSFORMERS MODEL REGULATION

Lebanon, *"Development of Energy Efficiency Standards and Labelling program for electric motors, transformers, washing machines and TVs in Lebanon"*

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List of abbreviations

AC	Alternate current
CAR	Conformity Assessment Report
DC	Direct current supply
EU	European Union
Hz	Hertz
kV	Kilo volts
kVA	Kilo Volt amperes
LIBNOR	Lebanese Normes
MV	Medium Voltage
U4E	United for Efficiency
UNEP	United Nations Environment Programme

Notes

This Notes section shall be removed prior to the promulgation of this Technical Regulation!

"Ecodesign" is a general term covering different aspects of environmental design (energy, water, etc.) addressed by the framework regulations and the specific implementing technical regulations. It is therefore preferable to use this term (Ecodesign) in order to ensure consistency between all regulations on energy-related products.

The Regulation establishing a framework for the setting of Minimum Energy Performance (Ecodesign) Requirements for Energy-related Products is presented in the Overarching Policy Document (Annex 1). It will be promulgated before or at the same time as this Technical Regulation, as it is a Regulatory Framework on which this Technical Regulation is based.

In order for this Technical Regulation to be effective, the competent authority shall confirm or amend the following key information on the document:

- The proposed scope is Article 1.
- The proposed energy performance requirements in Article 3
- The proposed entry into force in Article 4.

0 Background

This document is a technical regulation to determine the minimum energy performance standards power transformers in Lebanon. This regulatory document is based on the U4E Energy Performance Requirements published by UNEP in July of 2019. The design of this regulation has been complemented with relevant elements of the European Ecodesign Commission Regulation (EU) No 548/2014 of 21 May 2014. The regulation has been adapted to Lebanon’s needs to generate climate benefits.

1 Article 1 - Subject matter and scope

1.1 Scope

This regulation sets out requirements for placing power transformers on the market or putting them into service in Lebanon as a standalone equipment or as a component of a system, and which meet the following criteria:

a. have 2 windings; and
b. have a rated power equal to or higher than 5 kVA but equal to or lower than 3150 kVA power rating; and
c. have a highest voltage for equipment higher than 1.1 kV, but not exceeding 36 kV; and
d. are used or to be used in 50 Hz electricity transmission and distribution networks or for industrial applications.

Distribution 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.

1.2 Exclusions

This Regulation shall not apply to transformers used in 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; or
b. transformers with low-voltage windings specifically designed for use with rectifiers to provide a DC supply; or
c. transformers specifically designed to be directly connected to a furnace; or
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; or
e. transformers specifically designed for limited operational time such as emergency installations; or
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 and underground mining applications;
m. transformers specifically designed for deep water (submerged) applications;
n. medium Voltage (MV) to Medium Voltage (MV) interface transformers up to 5 MVA;
o. three-phase medium power transformers with a power rating below 5 kVA.

2 Article 2 - Definitions

The following definitions shall apply to this Regulation.

1. ‘Dry-type transformer’ refers to a power transformer that has magnetic circuit and windings not immersed in an insulating liquid.
2. ‘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.
3. ‘Earthing or grounding transformers, this is, three-phase transformers intended to provide a neutral point for system grounding purposes’ refers to any transformer as defined in subclause 3.1.10 of IEC 60076-6:2007.
4. ‘Electric energy converter’ is a device that changes one or more properties related to electric energy.
5. ‘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.
6. ‘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.
7. ‘Fire safer standard transformer’ refers to a power transformer that can be used in potentially explosive atmospheres; hence flammability is restricted, and emissions of toxic substances and opaque smoke is minimised.
8. ‘Highest voltage for equipment’ (Um) applicable to a transformer winding is the highest r.m.s phase-to-phase voltage in a three-phase system for which a transformer winding is designed in respect of its insulation.
9. ‘High-voltage winding’ is the winding having the highest rated voltage.
10. ‘IEC Standard’ refers to the international standard that is published by the International Electrotechnical Commission denoted by the letters “IEC” and identifying number and/or letters.
11. ‘Instrument transformer’ is any transformer as defined in subclause 3.1.1 of IEC 61869-1:2007, even if it supplies energy for the operation of connected equipment.
12. ‘Liquid-immersed transformer’ refers to a power transformer that has magnetic circuit and windings immersed in liquid.
13. ‘Load loss’ (Pk) means the absorbed active power at rated frequency and reference temperature associated with a pair of windings when the rated current (tapping current) is flowing through the line terminal(s) of one of the windings and the terminals of the other windings are in short-circuit with any winding fitted with tappings connected to its principal tapping, while further windings, if existing, are open-circuited.
14. ‘Medium Voltage (MV) to Medium Voltage (MV) interface transformers’ is any transformer used in network voltage conversion program and placed at the junction between two voltage levels of two MV networks and which needs to be able to cope with emergency overloads.
15. ‘Model identifier’ means the code, usually alphanumeric, which distinguishes a specific product model from other models with the same trademark or the same manufacturer’s or importer’s name.

16. ‘No load loss’ (Po) means the active power absorbed at rated frequency when the transformer is energised, and the secondary circuit is open. The applied voltage is the rated voltage, and if the energized winding is fitted with a tapping, it is connected to its principal tapping.
17. ‘Peak Efficiency Index’ (PEI) means the maximum value of the ratio of the transmitted apparent power of a transformer minus the electrical losses to the transmitted apparent power of the transformer.
18. ‘Power transformer’ is a transformer that transmits electrical power by converting a system of alternating voltage and current into another system of alternating voltage and current at the same frequency.
19. ‘Rated power (Su)’ is the rated power of the transformer or autotransformer as defined in IEEE C57.12.80 on which Pk is based.

    Note: IEEE C57.12.80 is based on liquid immersed winding temperature of 55°C and dry-type winding temperature of 75°C.
20. ‘Rated power’ (Sr) is a conventional value of apparent power assigned to a winding which, together with the rated voltage of the winding, determines its rated current according with IEC 60076-1 on which Pk is based.
21. ‘Rated voltage of a winding’ (Ur) is the voltage assigned to be applied, or developed at no-load, between the terminals of an untapped winding, or of a tapped winding connected on the principal tapping.
22. ‘SI unit’ means any of the units adopted for international use under the Système International d’unités.
23. ‘Starting transformers, specifically designed for starting three-phase induction motors so as to eliminate supply voltage dips’ is any transformer that is de-energized during normal operation, used for the purpose of starting a rotating machine.
24. ‘Traction transformer’ is any transformer installed on board of rolling stock inserted in the traction and auxiliary circuits of rolling stock and in the scope of IEC 60310.
25. ‘Transformer with low-voltage windings specifically designed for use with rectifiers to provide a DC supply’ refers to any transformer specifically designed and intended to supply power electronic, or rectifier loads specified according to IEC 61378-1.

    Note 1: The term “low-voltage winding” refers to the winding having the lowest rated voltage as per IEC 60076-1, whatever its voltage level.

    Note 2: This definition does not include:

    - transformers which are intended to provide AC from DC sources such as transformers for wind turbine and photo voltaic applications;
    - transformers designed for DC transmission and distribution applications.
26. ‘Transformer’ is an electric energy converter without moving parts that changes voltages and currents associated with electric energy without changing the frequency.
27. ‘Transformers and auto-transformers specifically designed for railway feeding systems’ refer to transformers as defined in EN 50329.
28. ‘Transformers specially designed for emergency installations’ are transformers designed only to provide cover for a specific time limited situation when the normal power supply is interrupted either due to an unplanned occurrence such as failure or a station refurbishment, but not to permanently upgrade an existing substation.

Note: Such transformer could have some specific features that make it suitable for emergency or temporary use as opposed to normal use. Examples of some specific features include:

- multiple windings making it suitable for use at several locations;
- special low weight or dimensions for easy transport, or special capability to be disassembled into smaller units for transport;
- increased overload capability achieved by the use of special materials;
- permanent mounting on a transporter arrangement.

29. 'Transformers specifically designed for offshore applications and floating offshore applications' refer to any transformer to be installed on fixed or floating offshore platforms, offshore wind turbines or on board of ships and all kind of vessels.
30. 'Winding' means the assembly of turns forming an electrical circuit associated with one of the voltages assigned to the transformer.
31. '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 on the compliance of testing and calculations methods used with applicable standards and legislation.

3 Article - 3 Requirements

All power transformers in the scope of this Regulation as defined in Article 1, that are manufactured in, undergo repair (as defined in the scope) in or are imported into Lebanon, shall meet the minimum energy performance requirements of Article 3.1 according to the enforcement schedule set in Article 4, the PCB requirements of Article 3.2, the product and technical information requirements of Articles 3.3 and 3.4, and the certification and registration requirements of Article 3.5. The related reference test standards, compliance certification and surveillance testing requirements are as listed in Article 3.6.

3.1 Energy Performance Requirements

Transformers in the scope of this Regulation shall comply with the maximum allowed load and no-load losses values set out in Table 1 and **Fehler! Verweisquelle konnte nicht gefunden werden.** for fire standard and fire safer power transformers, respectively. If not otherwise specified, three phase or single-phase power transformers shall be evaluated against the rated power of the individual unit. Maximum allowable losses rated powers that fall in between the given values shall be obtained by linear interpolation.

Table 1: Fire standard distribution power transformers – Maximum load losses (LL) and no-load losses (NL).

Single- or three-phase, 50 Hz 2 windings, MV Um ≤ 24kV, LV Um ≤ 1.1 kV, OLTC range ≤ 5%						
Rated Power IEC 60076-1	**Level 1**			**Level 2**		
	Load losses	**No-load losses**	**EIA50**	**Load losses**	**No-load losses**	**EIA50**
kVA	**Watts**	**Watts**	**%**	**Watts**	**Watts**	**%**
≤25	900	70	97.640	600	63	98.296
50	1100	90	98.540	750	81	98.926
100	1750	145	98.835	1250	130	99.115
160	2350	210	99.003	1750	189	99.217
250	3250	300	99.110	2350	270	99.314
315	3900	360	99.152	2800	324	99.350
400	4600	430	99.210	3250	387	99.400
500	5500	510	99.246	3900	459	99.426
630	6500	600	99.294	4600	540	99.463
800	8400	650	99.313	6000	585	99.479
1000	10500	770	99.321	7600	693	99.481
1250	11000	950	99.408	9500	855	99.483
1600	14000	1200	99.413	12000	1080	99.490
2000	18000	1450	99.405	15000	1305	99.495
2500	22000	1750	99.420	18500	1575	99.504
3150	27500	2200	99.424	23000	1980	99.509

Table 2: Fire safer distribution power transformers – Maximum load losses (LL) and no-load losses (NL).

Single- or three-phase, 50 Hz 2 windings, MV Um ≤ 24kV, LV Um ≤ 1.1 kV, OLTC range ≤ 5%						
Rated Power IEC 60076-1	**Level 1**			**Level 2**		
	Load losses	**No-load losses**	**EIA50**	**Load losses**	**No-load losses**	**EIA50**
kVA	**Watts**	**Watts**	**%**	**Watts**	**Watts**	**%**
≤ 50	1700	200	97.500	1500	180	97.780

100	2050	280	98.415	1800	252	98.596
160	2900	400	98.594	2600	360	98.738
250	3800	520	98.824	3400	468	98.946
400	5500	750	98.938	4500	675	99.100
630	7600	1100	99.048	7100	990	99.122
800	8000	1300	99.175	8000	1170	99.208
1000	9000	1550	99.240	9000	1395	99.271
1250	11000	1800	99.272	11000	1620	99.301
1600	13000	2200	99.319	13000	1980	99.346
2000	16000	2600	99.340	16000	2340	99.366
2500	19000	3100	99.372	19000	2790	99.397
3150	22000	3800	99.410	22000	3420	99.434

Table 3 provides correction factors that may be used for weighting the losses given in Table 1 and Table 2, to account of variations related to the highest voltage for equipment values.

Table 4 provides the correction factors that shall be used for weighting the level of losses given in Table 1 and 2, to account for variations related to dual voltage windings.

For power transformers having dual voltage on both windings for which both voltages on one winding are fully rated in combination with one of the voltages on the other winding, the levels of losses shall be based on the highest power and the values indicated in Table 1 and 2 above can be increased by 15 % for no load losses and by 10 % for load losses. The level of losses shall refer to the highest voltages of both windings. This remains valid even if further voltage combinations are available.

For a power transformer having an insulation level according to Table 3 and having dual voltage according to Table 4 the loss level shall take into account both corrections.

Table 3: Correction of load loss and no-load loss applicable to other insulation levels.

Ref	Highest voltage for equipment values	Correction of load loss and no-load loss
1	One winding with 1.1 kV **<** *U*m **≤** 24 kV and the other with 1.1 kV **<** *U*m **≤** 24 kV	The maximum losses indicated in Table 1 and 2 can be increased by 10 % for no load loss and by 10 % for load loss.
2	One winding with 24 kV **<** *U*m **≤** 36 kV and the other with *U*m **≤** 1.1 kV	The maximum losses indicated in Table 1 and 2 can be increased by 15 % for no load loss and by 10 % for load loss and short circuit impedance unless otherwise specified should be increased by adding a value of 0.5 %.
3	One winding with 24 kV **<** *U*m **≤** 36 kV and the other with *U*m **>** 1.1 kV	The maximum levels of losses indicated in Table 1 and 2 can be increased by 20 % for no load loss and by 15 % for load loss and short circuit impedance unless otherwise specified should be increased by adding a value of 0.5 %.

Table 4 Correction of load loss and no-load loss applicable to dual voltage.

Ref	Dual voltage	Correction of load loss and no-load loss
A	One winding	In the case of power transformers with one high-voltage winding and two voltages available from tapped low-voltage winding, losses shall be calculated

		based on the higher low-voltage and shall comply with the levels indicated in Table 1 and 2. The maximum available power on the lower low-voltage on such power transformers shall be no more than 0.85 times its rated power. In the case of power transformers with one high-voltage winding with two voltages available from a tap, the maximum available power on the lower high-voltage on such power transformer shall be limited to 0.85 of its nominal rated power. In the case where the full rated power is available regardless of the combination of voltages, the levels of losses indicated in Table 1 and 2 can be increased by 15 % for no load loss and by 10 % for load loss. Such levels of losses shall refer to the highest voltage.
B	Both windings	The maximum allowable losses indicated in Table 1 and 2 can be increased by 20 % for no load losses and by 20 % for load losses for power transformers with dual voltage on both windings if the rated power is the same regardless of the combination of voltages. The level of losses shall refer to the highest voltages of both windings. This remains valid even if further voltage combinations are available.

3.2 PCB Contamination Requirements

Transformers within the scope of this Regulation shall comply with the Stockholm Convention on Persistent Organic Pollutants and shall not contain Polychlorinated biphenyls (PCB) fluids or other hazardous materials as defined in the relevant international, regional, and national regulations.

3.3 Product Information Requirements

The following product information requirements for power transformers included within the scope of this Regulation shall be included in any related product documentation, including free access websites of manufacturers:

a. information on rated power.
b. load loss and no-load loss.
c. the electrical power of any cooling system required.
d. information on the weight of all the main components of a power transformer (including at least the conductor, the nature of the conductor and the core material)
e. manufacturer/repairer name.
f. year of manufacturing/repairing.
g. serial number.

The above-mentioned information shall also be durably marked on or near the rating plate of the power transformer.

3.4 Technical Documentation Requirements

The following information shall be included in the technical documentation of power transformers:

a. manufacturer's or repairer’s name and address.
b. model identifier, the alphanumeric code to distinguish one model from other models of the same manufacturer.
c. the information required under Article 3.3 above.

3.5 Compliance Certification and Registration Requirements

The transformer's energy performance must be tested in accordance with the requirements set by IEC 60076-1.

The transformer's fire performance must be tested in accordance with the requirements set by a suitable recognized test standard. For dry-type transformers for example IEC 60076-11.

3.5.1 Test Certificates

Test certificates from the following laboratories are accepted:

a. Manufacturers' in-house test laboratories;

b. Third party test laboratories that have been accredited by their respective national accreditation bodies or by an international accreditation body for a measurement expanded uncertainty, as defined in EN 60076-19 and referring to a coverage factor k = 2 (i.e., to a confidence level of about 95% assuming a normal distribution), not exceeding 5 %.

3.5.2 Registration

Importers and manufacturers/repairers of transformers covered by this Regulation must register themselves with the designated authority, following the prescribed procedure, accompanied by the required documents and information and the applicable fees.

Transformer designs covered by this Regulation must be registered with the designated authority through the submission of the full product and technical information as required under Articles 3.3 and 3.4, together with the test certificates as required by the Test Certificates clause (clause 3.5.1).

3.6 Referenced Test Standards, Compliance, Certification and Surveillance Testing

The metrics, referenced standards, compliance certification, and surveillance testing criteria are set out in this section.

3.6.1 Main Reference

IEC 60076-1 ed3.0 (2011-04) Power transformers - Part 1: General.

3.6.2 Supplementary References

Supplementary references relevant to this Regulation are summarised in **Fehler! Verweisquelle konnte nicht gefunden werden.**.

Table 5: Supplementary References.

Standard	Title
IEC 60076-2 ed3.0 (2011-02)	Power transformers - Part 2: Temperature rise for liquid immersed transformers
IEC 60076-3 ed3.0 (2013-07)	Power transformers - Part 3: Insulation levels, dielectric tests and external clearances in air
IEC 60076-4 ed1.0 (2002-06)	Power transformers - Part 4: Guide to the lightning impulse and switching impulse testing- Power transformers and reactors
IEC 60076-5 ed3.0 (2006-02)	Power transformers - Part 5: Ability to withstand short circuit
IEC 60076-6 (2007)	Power transformers - Part 6: Reactors

IEC 60076-7 ed1.0 (2005-12)	Power transformers - Part 7: Loading guide for oil-immersed power transformers
IEC 60076-8 ed1.0 (1997-10)	Power transformers - Part 8: Application guide
IEC 60076-10 ed1.0 (2001-05)	Power transformers - Part 10: Determination of sound levels
IEC 60076-10-1 ed1.0 (2005-10)	Power transformers - Part 10-1: Determination of sound levels - Application guide
IEC 60076-11 ed2.0 (2018-11)	Power transformers - Part 11: Dry-type transformers
IEC 60076-13 ed1.0 (2006-05)	Power transformers - Part 13: Self-protected liquid-filled transformers
IEC 60076-14 (2013-09)	Power transformers - Part 14: Design and application of liquid immersed power transformers using high-temperature insulation materials
IEC/TS 60076-19 ed1.0 (2013-03)	Power transformers - Part 19: Rules for the determination of uncertainties in the measurement of losses in power transformers and reactors
IEC/TS 60076-20 ed1.0	Power transformers - Energy efficiency
IEC 60137 (2008)	Insulated bushings for alternating voltages above 1000 V
IEC 60296 (2003)	Fluids for electro technical applications – Unused mineral insulating oils for transformers and switchgear
EN 50329	Railway applications – Fixed installations – Traction transformers
IEC 61378-1	Converter transformers - Part 1: Transformers for industrial applications
IEC 61869-1:2007	Instrument transformers - Part 1: General requirements
IEEE C57.12.80-2010	IEEE Standard Terminology for Power and Distribution Transformers

4 Entry Into Force

The energy performance requirements set out in Article 3 shall take effect as follows:

- Level 1 from 1 January 2025
- Level 2 from 1 January 2030

All other requirements set out in Article 3 shall take effect from 1 January 2025.

5 Declaration of Conformity

Compliance with the requirements of this Regulation shall be demonstrated in accordance with the provisions of Article 3. Suppliers (i.e., importers and manufacturers or repairers) shall provide the information and technical documentation necessary for the market surveillance authority to assess conformity and verify compliance and any additional optional claims. This information and technical documentation can be provided by the supplier as a Conformity Assessment Report (CAR) and/or entered into the relevant product registration database or supplied in any other format as reasonably determined by the market surveillance authority.

The conformity assessment information and documentation should:

a. demonstrate that the product model fulfils the requirements of this Regulation;

b. provide any other information required to be present in the technical documentation file;

c. specify the reference settings and conditions in which the product complies with this Regulation.

The information shall be submitted to the designated authority by the supplier for review prior to placing the product on the market. If the CAR or application for registration for the designated model is approved, which is confirmed by written correspondence from the designated authority and/or listing of the product on the relevant product registration system, the model may be placed on the market. If a CAR or application for registration is rejected, a written explanation shall be provided to the submitter. All aspects identified in the written explanation must be addressed in any revised CAR or application for registration.

Until the CAR or application for registration is approved, the product is ineligible for placement on the market. The duration of product CAR or registration validity shall be as reasonably determined by the market surveillance authority. The supplier is obliged to check and update product conformity information, including informing the market surveillance authority of pertinent information as defined by the authority related to product compliance without undue delay.

6 Market Surveillance and Enforcement

In order to verify the claimed energy performance of a power transformer covered by this Regulation, the designated market surveillance authority can test any one single unit to be picked at any time directly from the market or where appropriate the premises of manufacturer, at its sole discretion, according to the test method prescribed in this Regulation.

For the purpose of compliance with the requirements of this Regulation, measurements shall be made using a reliable, accurate and reproducible measurement procedure, which takes into account the generally recognised state of the art measurement methods.

When performing market surveillance, the designated market surveillance authority shall apply the following verification procedures for the set-out requirements:

a. The designated market surveillance authority shall test one single unit per model;

b. The model shall be considered to comply with the applicable requirements set-out by this Regulation if the values in the technical documentation comply with the requirements set out in Articles 3.2 and 3.4, and if the measured parameters meet the requirements set out in Article 3.1 within the indicated verification tolerances set by IEC 60076-1;

c. If the results referred to in point (b) are not achieved, the model shall be considered not to comply with this Regulation. If a decision of non-compliance is taken, the market surveillance authority may inform other government authorities to take consequential enforcement actions against the manufacturer and / or importer, as well as inform other authorities in the region of the decision being taken to help protect against the widespread sale of the same model.

Given the weight and size limitations in the transportation of power transformers, the designated authorities may decide to undertake the verification procedure at the premises of manufacturer(s) before they are put into service in their final destination. The verification tolerances set-out in this clause relate only to the verification of the measured parameters by designated authorities and shall not be used by the manufacturer or importer as an allowed tolerance to establish the values in the technical documentation.

Any person, persons or firm manufacturing, importing, storing for sale, supplying, selling, or distributing distribution power transformers in the scope of this Regulation, which do not meet the specified minimum energy performance requirements after the date of entry into force of this Regulation shall be liable for penal actions including, but not limited to warnings, sanctions, fines, penalties, public naming, delisting etc. as may be determined by the designated authority.

Further, the entity in possession of a distribution power transformer within the scope of this Regulation, other than an end-user, that does not meet the specified requirements shall ensure that it is rendered unusable and dispose of it as scrap within three months from the date that the non-conformance is first detected.

An exception shall be allowed for new distribution power transformers which have been placed on the market (i.e., supplied by a manufacturer or importer for distribution and sale) prior to the entry into force of this regulation. Existing stocks of such transformers in the distribution chain may continue to be sold even after the entry into force of this Regulation, up to a maximum period of two years or until the stocks of such transformers are exhausted, whichever is earlier.

7 Revision

It is anticipated that this Regulation shall be reviewed after not more than 7 years after its entry into force, so as to take into account technological progress and any other relevant matters. It is recommended that any subsequent review or revision to this Regulation take into consideration the following topics:

a. setting more stringent energy performance requirements for distribution power transformers;
b. combining this Regulation with other transformer-related regulations;
c. setting specific minimum requirements in the context sustainable transformers (Ecodesign).