TRAFO ELETTRO SRL

ENVIRONMENTAL PRODUCT DECLARATION

Production site:

Via Ponte Poscola, snc, Montecchio Maggiore, VI

3500 kVA Cast Resin Transformer:

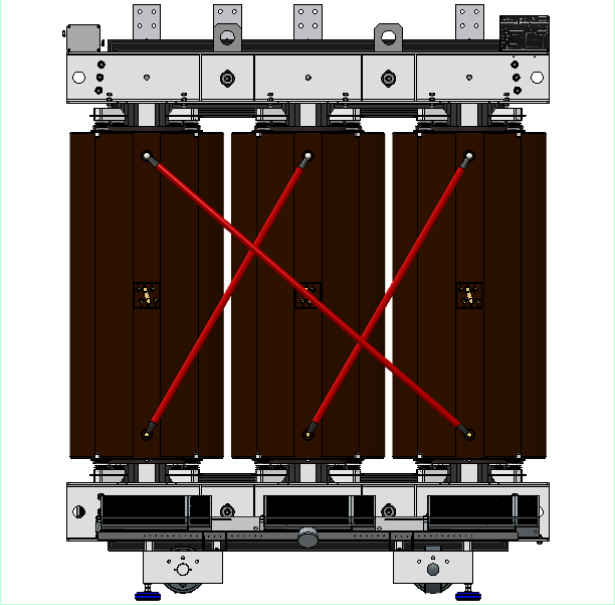
- **TES-R2-2 3500kVA 20.4/0,400kV Dyn11 50Hz**

In accordance with ISO 14025 and EN 50693:2019

Program Operator	EPDItaly
Publisher	EPDItaly

Declaration number	*EPD-TRAFO-002 rev.03*
Registration Number	EPDITALY1074

Release Date	22 / 09 /2025
Valid until	22 / 03 / 2027



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GENERAL INFORMATION

EPD OWNER	
Company Name	Trafo Elettro srl
Registered office	Via Ponte Poscola, snc, Montecchio Maggiore, VI
Contact for EPD information	Mattia.pallone@trafoelettro.com Tel: +390444 482204

PROGRAM OPERATOR	
EPDItaly	Via Gaetano De Castillia n° 10 - 20124 Milano, Italy

ABOUT THE EPD	
Product(s) Name	Resin transformer 3500 kVA: TES-R2-2 3500kVA 20.4/0,400kV Dyn11 50Hz
Site	Via Ponte Poscola, snc, Montecchio Maggiore, VI
Brief description and technical information of the product(s)	Cast resin transformer with a nominal power of 3500 kVA whose design has been completed.
Scope of product(s)	Electronic and electrical products and systems
Product(s) reference standards (if any)	CEI EN 60076
CPC Code (number) https://unstats.un.org/unsd/classifications/Econ	46121 – Electrical transformers

VERIFICATION INFORMATION	
PCR (title, version, publication date or update)	EPDItaly007-PCR for electronic and electrical products and systems:(Stand-alone) – Rev 3.1 of 12/11/2024 EPDItaly 018 -PCR Power transformers Rev. 3.6 of 01/07/2024 They can be downloaded from the tables in the PCR download area of the EpdItaly website.
EPDItaly Regulation (version, date of publication or update)	EPDItaly Regulation Rev.06 of 30/10/2023
Project Report LCA	LCA- EPD Report Resin Transformer 3500 kVA (EPDITALY1074) re. 04 of 31/08/2025
Independent Verification Statement	The PCR review was performed by Eng. Luca Giacomello, Arch. Michele Paleari, Dr. Balazas Sara– info@epditaly.it. Independent verification of the declaration and data carried out in accordance with ISO 14025:2010. ☐ Indoor ☑ Outdoor Third-party verification carried out by: ICMQ S.p.A., via Gaetano De Castillia n° 10 - 20124 Milan, Italy. Accredited by Accredia.
Statement Comparability	Environmental claims published within the same product category, but from different programs, may not be comparable.
Statement Responsibility	The EPD Owner relieves EPDItaly from any non-compliance with environmental legislation. The holder of the statement will be responsible for the information and supporting evidence. EPDItaly declines all responsibility for the information, data and results provided by the EPD Owner for the life cycle assessment.

Product type statement	The product covered by the EPD is in the design phase, the future realization of the product in line with the project data is the sole responsibility of the EPD Owner
Statement of reference data	The database used is considered representative on the basis of the representativeness analysis carried out with respect to the data of a reference product of the Owner EPD

1. Organization description

Trafo Elettro S.r.l. is an Italian company with over half a century of experience in the design, construction and testing of electrical transformers. Founded in 1969 in Tezze di Arzignano (VI) as an artisan workshop, the company has followed a path of progressive industrial evolution, establishing itself today as an internationally recognized leader in the field of electromechanics for energy conversion.

Trafo Elettro's production system is divided into three plants located in the Veneto region, each equipped with dedicated departments and independent technical structures. In particular, the Montecchio Maggiore site is intended for the manufacture of distribution and power transformers and is designed to meet high standards of specialization, safety, and operational reliability.

The organization oversees the entire industrial cycle of the product, from the receipt of raw materials to final testing, ensuring direct control of critical phases such as winding, mechanical assembly, insulation and electrical checks. The company's activities are carried out in accordance with an integrated management system that meets the requirements of the international standards UNI EN ISO 9001:2015 for quality, UNI EN ISO 14001:2015 for the environment and ISO 45001:2018 for health and safety at work. The adoption of a process-based approach, supported by a system of continuous improvement, reflects the company's ongoing commitment to efficiency, environmental responsibility and worker protection.

The product range includes oil-filled transformers, cast resin transformers, amorphous core transformers and tailor-made solutions for special applications. To date, over 30,000 transformers made by Trafo Elettro are in operation in more than 90 countries, testifying to the company's ability to respond effectively to complex and diversified market needs.

Trafo Elettro's identity is based on a consolidated combination of technical skills, design reliability, attention to environmental sustainability and industrial vision. The company invests in research and development in collaboration with universities and external centers of expertise, with the aim of ensuring the continuous technological evolution of its products and adherence to the most up-to-date regulatory and safety requirements.

In an industrial context in continuous transformation, Trafo Elettro **positions itself as a qualified partner** for public and private customers, offering customized solutions, specialized technical support and an operating model based on rigor, transparency and continuous improvement.

2.Product description

This Life Cycle Analysis (LCA) study has been developed in order to meet a specific request from a strategic customer of Trafo Elettro, operating internationally. The customer requested the preparation of an Environmental Product Declaration (EPD), compliant with ISO 14025, EN 15804 and PCR EPDItaly007, for a transformer with a nominal power of 3500 kVA. The EPD is a necessary requirement to participate in the tender. The transformer in question is called: TES-R2-2 3500kVA 20.4/0.400kV Dyn11 50Hz.

The present study is based on the assumptions made in the LCA study produced by Trafo Elettro for registration EPDItaly1073 in which the entire product life cycle was studied for three cast resin transformers with a nominal power of 2500 kVA.

The product in question, as mentioned in the previous paragraph, is a cast resin transformer with a nominal power of 3500 kVA. For this transformer, the entire electrical design has been completed, enabling the generation of a bill of materials with all the details of the materials required for the transformer's production. Therefore, although it was never produced, all the information necessary for Trafo Elettro srl to conduct a cradle-to-grave LCA study is available.

Below are the product data obtained directly from the datasheet of the transformer in question:

	TES-R2-2 3500kVA 20.4/0,400kV Dyn11 50Hz
General information	
Reference standards	IEC 60076 - EU-548/2014-T2 - IEC 61378
Power kVA)	3500
Frequency (Hz)	50
Vector group	Dyn 11
Electrical data	
No load losses (W)	4500
Load losses 120°C (W)	25950

3. Functional unit

Declared unit	Description/Function	Service Life (RLS)
1 Single Transformer: TES-R2-2 3500kVA 20.4/0.400kV Dyn11 50Hz	The calculation was carried out in accordance with Core-PCR EPDItaly007 "Electronic and electrical products and systems" and Sub-PCR EPDItaly018 "Electronic and electrical products and systems – Power Transformers" proposed by Enel S.p.A. and approved by EPDItaly. The calculation was carried out using the manufacture, assembly, testing, use and end-of-life of the individual transformer produced as a functional unit	35 years according to EPDItaly018 "Electronic and electrical products and systems – Power Transformers

Time representativeness:

The data used to carry out the study refer to the time frame from 1 January 2024 to 31 December 2024.

Geographical representativeness:

The geographical area of production of the transformers is Italy. All the transformers in question were produced in-house by Trafo Elettro in the production plant in Via Ponte Poscola, Montecchio Maggiore, VI.

For the energy consumption during the use phase of the transformer, the representative energy consumption of Portugal, the country of destination of the transformer, was taken into account.

Allocation criteria:

Inventory parameter	Assumptions and allocation
Consumption of raw materials and material supplied	In Trafo Elettro's production process there is no production of by-products, so it is not necessary to make any allocation of the raw material used for the construction of transformers. The consumption relating to the material used to produce the transformers in question was obtained from the bill of materials of the project documentation.
Electricity and thermal energy consumption	Trafo Elettro's production process, however, consists of two distinct production lines: one dedicated to the production of cast resin transformers and another dedicated to the production of oil-filled transformers. In order to avoid the allocation of energy consumption, Trafo Elettro has equipped itself with a device for the direct measurement of electricity consumption (S604E-ROG) of the systems used for the construction of cast resin transformers. In this way, in addition to avoiding the allocation of the plant's energy consumption, the data used are primary.
Waste, direct emissions into the atmosphere and auxiliary material	The direct emissions into the atmosphere of the production processes were modelled by considering the data of the environmental analyses carried out in the reference year for each plant. Waste was modelled considering waste generation in the reporting year.

Cut-off criteria:

For the realization of the study, in accordance with the provisions of the PCR EPDItaly018, the following flows and operations were excluded:

- Production, use and disposal of the packaging of components and intermediate semi-finished products;
- Material and energy flows related to the installation phase;
- Devices external to the product itself necessary for installation;
- Material and energy flows related to the decommissioning phase where it is reasonable to assume that disposal is carried out using hand tools;
- Materials of the transformer itself whose total mass does not exceed 1% of the product's total weight.

In detail, the percentage of material considered of the transformers under study is as follows:

	TES-R2-2 3500kVA 20.4/0,400kV Dyn11 50Hz
% Excluded Materials	0,37%
% considered	99,63%

Details of the materials and components considered:

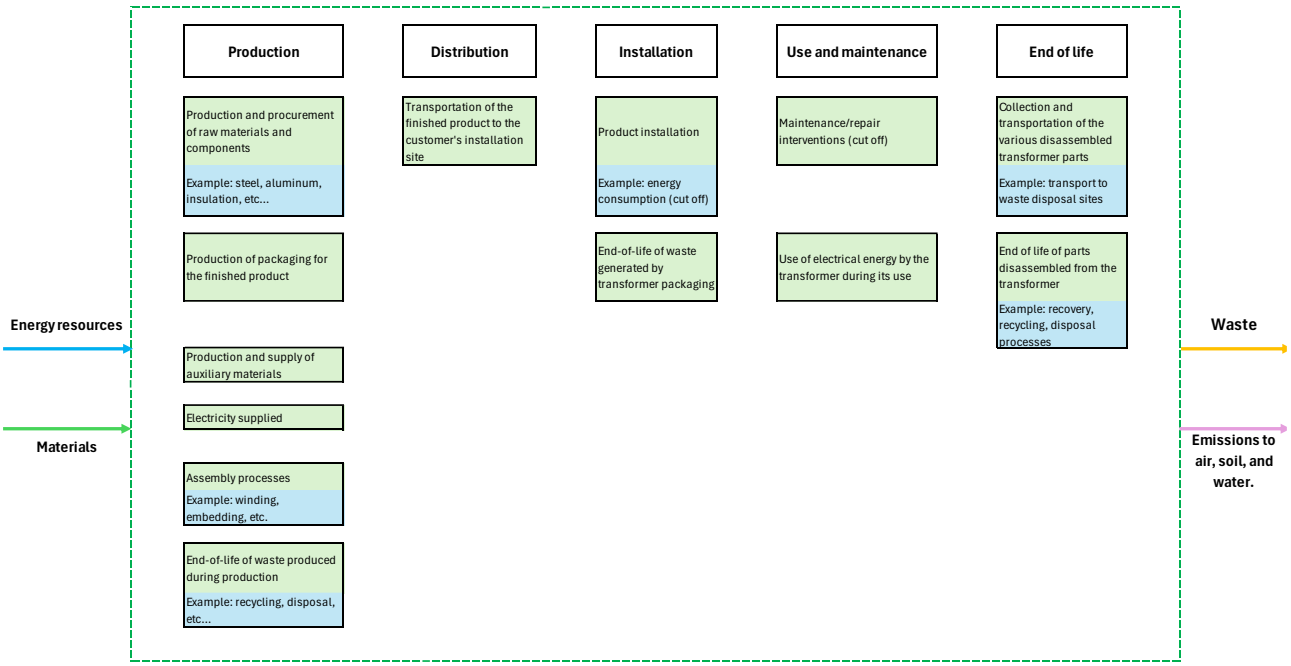
Component	**Material**	**TES-R2-2 3500kVA 20.4/0,400kV Dyn11 50Hz**	
		Totale weight (kg)	**7308,4 kg**
		Weight (kg)	**Percentuale (%)**
tic Core	**H95-23L**	4818,8	65,94%
:tors	**Aluminum**	1603,7	21,94%
ors	**Poliestere**	136	1,86%
	Resin	578,5	7,92%
;	**Cast iron**	28	0,38%
t materials	**Plastic materials**	143,4	1,96%

Database and LCA software:

For the realization of this LCA study, Trafo Elettro has adopted the SimaPro platform version 10.2.0.1, integrated with the Ecoinvent EN15804 database, selected for its adherence to the requirements of the EN 15804 standard and the applicable PCRs, as well as for its wide coverage and quality of data relating to construction products and electrical systems. This configuration made it possible to model the entire product system within the organization, ensuring direct control over the process and data traceability. The development of the study was also supported by the technical-scientific contribution of Aequilibria Srl and the Department of Industrial Engineering of the University of Padua, to guarantee the methodological robustness and correctness of the LCA model implemented.

4. System boundaries

The study in question is cradle to grave and includes assembly, distribution, installation, use and end-of-life phases.



Declared forms

Below are the details of the modules extracted from the reference EPDItaly018 PCR with the detail of the cut-offs used during the study:

PHASES	MANUFACTURING STAGE	DISTRIBUTION STAGE	INSTALLATION STAGE	USE & Maintenance STAGE	END-OF-LIFE STAGE De-installation	BENEFITS & LOADS BEYOND THE SYSTEM BOUNDARIES*
	IN ACCORDANCE WITH EN 50693					
Phases declared	X	X	X	X	X	Opt. MND

*MND: Module Not Declared.

Assembly (A1-A3)

In this module, all processes necessary for the production of transformers have been considered, including

A1 Raw materials

This module includes:

- Materials that are used directly for the production of the finished product;
- Auxiliary materials. This category includes all products for the maintenance and cleaning of systems;

- Packaging: this category includes all the packaging of the finished product.

A2 Transport to the factory gate

This module includes the transport of all the raw material used to make the product, including auxiliary materials and packaging.

A3 Plant consumption

This module includes:

- all the annual consumption of the plant (electricity supply only);); the source of electricity used and modelled for the production site is based on the Italian residual mix, equal to 0.680 kg CO_2 eq/kWh (Ecoinvent 3.11).
- This includes all waste from the plant associated with the production of the transformers in question;
- Air emissions. Emissions into the atmosphere verified with chimney analysis are included.

Distribution (A4)

This module includes the transport of the transformer from the production site to the transformer installation site in Portugal.

Transformer Installation (A5)

There is no energy consumption associated with the installation of the transformers in question; therefore, this module contains only information regarding the end-of-life of the packaging.

Using the Transformer (B)

In accordance with EN 50693, modules B1–B5 and B7 are declared as "not relevant" for cast resin transformers, as there are no significant environmental impacts associated with these modules during the use phase of the product.

Especially:

- Cast resin transformers do not require scheduled maintenance that involves material or energy consumption (B1).
- No significant repair or replacement is planned during the standard service life (B2 and B3).
- There is no provision for product modernization/refurbishment during its useful life (B4).
- There is no energy consumption other than the electricity in use (B5).
- There is no water consumption during operation, as it is dry equipment (B7).

The only relevant environmental contribution in the use phase is electricity consumption (Module B6), calculated in accordance with the formula prescribed in the PCR.

In this module, therefore, all the electrical energy used by the product during its entire life of use, declared in the functional unit of 35 years, is quantified, as required by the reference PCR. The PCR itself specifies a specific formula for the energy calculation, shown below (directly taken from PCR):

The total energy consumed shall be expressed in kWh and it can be computed via the following formula:

$$E_d[kWh] = [P_{load} * k_{load}^2 + P_{noload}] * t_{year} * RSL + P_{aux} * f_{aux} * t_{year} * RSL$$

Where:

P_{load} is the load loss of the transformer at 75 °C reference temperature at nominal power. It is expressed in kW.

k_{load} represents an average load factor for the equipment. For calculations based on this PCR, 70% of nominal power shall be adopted.

P_{noload} is the power dissipated in case no losses shall occur. It is expressed in kW.

P_{aux} is the power loss due to auxiliary activities at no load (such as cooling). It is expressed in kW.

f_{aux} represents the fraction of time in which ancillary equipment is operating. It is expressed in % over 1 year.

t_{year} is the total amount of hours during a year. For this calculation, 8 760 hours shall be considered.

RSL represents the Reference Service Life, defined as 35 years for EPDs based on this PCR.

The values used for the energy calculation were taken directly from the transformer datasheet. The results obtained for the transformer under study and for the transformer used as a reference (TRT000001342) are shown below: TES-R2-2 2500kVA 33/0.400kV Dyn11 50Hz of study EPDItaly1073:

Trasformatore	Pload 75°C (kW)	Pnoload (kW)	K load (da PCR)	t year (da PCR)	RLS (Da PCR)	Ed (kWh)
TES-R2-2 3500kVA 20.4/0,400kV Dyn11	23,095	4,5	0,7	8760	35	4849354,23
TRT000001342 (da studio EPDItaly 1073)	18,601	3,205	0,7	8760	35	3777155,634

End of life (C1-C4)

C1 – Disassembly and removal: the removal of transformers is carried out through manual operations, which do not involve a significant environmental impact. Negligible impact has therefore been attributed.

C2 – Transport to a treatment plant: a hypothetical average transport of 150 km, by road, between the installation site and the waste treatment plant was modelled.

C3–C4 – Waste treatment and disposal: the scenario was built on the basis of the technical indications provided by the end customer, considering both the recovery of metals (steel, copper, aluminium) and the management in landfills or waste-to-energy of non-recoverable fractions (e.g. resin and insulating materials). The treatment and disposal processes were modelled using datasets representative of the destination country in the Ecoinvent 3.11 database.

Reuse-Recovery-Recycling Potential (D)

In accordance with the provisions of the EPDItaly018 sub-PCR (Rev. 3.6), module D has not been declared as it is considered optional.

5. Environmental performance

The assessment of the environmental impacts of the entire life cycle of the transformer was performed with the SimaPro Software version 10.2.0.1 applying the method suggested by the reference PCR: EN 15804:2021+A2:2019. This LCA report has been developed considering the principle of modularity (A1–A3, A4–A5, B1–B7, C1–C4 and D) and respecting the PPP (Polluter Pays Principle). The standardization and

weighting criteria of the EF 3.1 model, published in July 2022, were used for these results. In addition, infrastructure processes and long-term emissions were excluded from the calculation. The impact categories considered optional by the reference PCR are not shown below.

The results obtained from the LCA study for all the impact categories defined by the reference PCR are reported below.

Categoria d'impatto	Unità	Totale	Assemblaggio Trasformatore (A1-A3)	Trasporto Trasformatore in sito (A4)	Installazione Trasformatore (A5)	Uso trasformatore (B)	Fine vita LCA (C)
Climate change - Total	kg CO2 eq	2,98E+06	4,68E+04	1,20E+03	9,87E-01	2,93E+06	3,70E+02
Climate change - Fossil	kg CO2 eq	2,97E+06	4,61E+04	1,20E+03	9,28E-01	2,92E+06	3,69E+02
Climate change - Biogenic	kg CO2 eq	3,12E+03	3,47E+02	2,70E-01	5,85E-02	2,77E+03	2,85E-01
Climate change - Land use and LU change	kg CO2 eq	4,60E+02	3,24E+02	1,96E-02	1,28E-03	1,36E+02	1,42E-02
Ozone depletion	kg CFC11 eq	5,62E-02	8,94E-04	2,82E-05	8,90E-09	5,52E-02	5,52E-06
Acidification	mol H+ eq	8,01E+03	2,42E+02	1,53E+00	2,64E-03	7,76E+03	1,94E+00
Eutrophication, freshwater	kg P eq	1,29E+02	2,04E+00	7,68E-04	4,38E-05	1,27E+02	1,56E-03
Eutrophication, marine	kg N eq	1,61E+03	3,85E+01	3,40E-01	5,24E-04	1,57E+03	7,82E-01
Eutrophication, terrestrial	mol N eq	1,81E+04	4,28E+02	3,69E+00	5,71E-03	1,77E+04	8,49E+00
Photochemical ozone formation	kg NMVOC eq	6,42E+03	1,61E+02	3,00E+00	1,85E-03	6,25E+03	2,72E+00
Resource use, minerals and metals	kg Sb eq	1,43E-01	1,09E-01	3,24E-05	8,31E-08	3,41E-02	2,54E-05
Resource use, fossils	MJ	4,20E+07	6,19E+05	1,65E+04	1,16E+01	4,13E+07	3,93E+03
Water use	m3 depriv.	2,29E+05	2,66E+04	1,31E+01	2,44E-01	2,03E+05	-6,06E+02

Table 1. Environmental impacts of the TES-R2-2 3500kVA 20.4/0.400kV Dyn11 50Hz transformer calculated according to the EN 15804 +A2 LCIA & LCI indicators V1.01 / EN 15804 method divided into modules A1-A2-A3

Categoria d'impatto	Unità	Totale	Assemblaggio Trasformatore (A1-A3)	Trasporto Trasformatore in sito (A4)	Installazione Trasformatore (A5)	Uso trasformatore (B)	Fine vita LCA (C)
PERE	MJ (LHV)	2,56E+06	1,09E+05	4,12E+01	2,74E+00	2,45E+06	2,47E+01
PERM	MJ (LHV)	6,52E+02	6,52E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ (LHV)	2,56E+06	1,10E+05	4,12E+01	2,74E+00	2,45E+06	2,47E+01
PENRE	MJ (LHV)	4,19E+07	6,09E+05	1,65E+04	1,16E+01	4,13E+07	-1,28E+03
PENRM	MJ (LHV)	1,53E+04	1,01E+04	0,00E+00	0,00E+00	0,00E+00	5,21E+03
PENRT	MJ (LHV)	4,20E+07	6,19E+05	1,65E+04	1,16E+01	4,13E+07	3,93E+03
Use of secondary material	kg	2,04E+03	1,91E+03	8,52E-03	9,54E-05	1,27E+02	8,29E-02
Use of renewable secondary fuels	MJ (LHV)	3,01E+01	2,51E+01	7,06E-04	4,88E-06	4,93E+00	6,47E-03
Use of non-renewable secondary fuels	MJ (LHV)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water	m3	6,47E+03	6,70E+02	3,20E-01	6,57E-03	5,81E+03	-1,41E+01

Table 2. Use of TES-R2-2 3500kVA 20.4/0.400kV Dyn11 50Hz transformer resources calculated according to the EN 15804 +A2 LCIA & LCI indicators V1.01 / EN 15804 method divided into modules A1-A2-A3

Categoria d'impatto	Unità	Totale	Assemblaggio Trasformatore (A1-A3)	Trasporto Trasformatore in sito (A4)	Installazione Trasformatore (A5)	Uso trasformatore (B)	Fine vita LCA (C)
Hazardous waste disposed	kg	2,07E+05	8,82E+03	6,29E-01	4,20E-02	1,99E+05	2,70E+00
Non-hazardous waste disposed	kg	5,25E+06	1,19E+05	5,33E+01	2,32E+00	5,11E+06	1,67E+04
Radioactive waste disposed	kg	6,29E+01	1,38E+00	9,97E-04	7,42E-05	6,15E+01	4,48E-04
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	1,53E+03	1,52E+03	3,72E-04	1,01E-03	6,87E+00	1,07E-02
Materials for energy recovery	kg	1,83E-01	2,01E-02	2,44E-06	5,26E-08	1,63E-01	1,07E-05
Exported energy - electricity	MJ	5,13E+05	4,19E+02	6,59E-01	4,98E-02	5,13E+05	5,98E-01
Exported energy - heat	MJ	9,63E+02	1,85E+02	1,56E+00	6,95E-04	7,75E+02	1,16E+00

Table 3. Output flows of the TES-R2-2 3500kVA 20.4/0.400kV Dyn11 50Hz transformer calculated according to the EN 15804 +A2 LCIA & LCI indicators V1.01 / EN 15804 method divided into modules A1-A2-A3

A comparison of the data shows that the environmental impacts of the product covered by the EPD vary by more than 10% compared to the set of environmental impacts of the similar product EPDItaly1073 TRT000001342: TES-R2-2 2500 kVA 33/0.400 kV Dyn11 50 Hz.

6. Bibliography

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7. Appendix

Nome completo	Abbreviazione	Descrizione	Unità	Metodo SimaPro utilizzato per fatto ri caratterizzazione
Potenziale di riscaldamento globale (totale)	Climate change - Total	Somma degli effetti da fonti fossili, biogeniche e cambiamenti d'uso del suolo (IPCC 100 anni)	kg CO_2 eq	EN 15804:2012+A2:2019
Potenziale di riscaldamento globale – Fossile	Climate change - Fossil	Emissioni da combustibili fossili	kg CO_2 eq	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Potenziale di riscaldamento globale – Biogenico	Climate change - Biogenic	Emissioni da biomassa o fonti organiche	kg CO_2 eq	EN 15804:2012+A2:2019
Potenziale di riscaldamento globale – Uso del suolo e cambiamenti d'uso	Climate change - Land use and LU change	Emissioni da conversioni di uso del suolo (es. deforestazione)	kg CO_2 eq	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Potenziale di riduzione dell'ozono stratosferico	Ozone depletion	Impatto di sostanze che degradano lo strato di ozono	kg CFC-11 eq	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Potenziale di acidificazione	Acidification	Emissioni che causano piogge acide o acidificazione del suolo	mol H^+ eq	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Potenziale di eutrofizzazione – acque dolci	Eutrophication, freshwater	Accumulo di nutrienti in acque dolci	kg PO_4^{3-} eq	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Potenziale di eutrofizzazione – ambienti marini	Eutrophication, marine	Eccesso di nutrienti in ecosistemi marini	kg N eq	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Potenziale di eutrofizzazione – ambienti terrestri	Eutrophication, terrestrial	Impatto nutrizionale su suoli e vegetazione	mol N eq	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Potenziale di formazione fotochimica di ozono troposferico	Photochemical ozone formation	Emissioni che generano smog fotochimico (ozono basso)	kg NMVOC eq	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Esaurimento di risorse abiotiche – metalli e minerali	Resource use, minerals and metals	Esaurimento di metalli rari e minerali non rinnovabili	kg Sb eq	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Esaurimento di risorse abiotiche – combustibili fossili	Resource use, fossils	Consumo di risorse energetiche non rinnovabili	MJ	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Potenziale di scarsità idrica (uso dell'acqua)	Water use	Impatto ponderato per la scarsità d'acqua regionale	m^3 world eq deprived	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Energia primaria non rinnovabile (escluso come materia prima)	PENRE	Energia da fonti non rinnovabili (carbone, gas, petrolio)	MJ	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Energia primaria non rinnovabile usata come materia prima	PENRM	Energia incorporata nei materiali (feedstock fossile)	MJ	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Energia primaria non rinnovabile totale	PENRT	Somma di PENRE + PENRM	MJ	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Energia primaria rinnovabile (escluso come materia prima)	PERE	Energia da fonti rinnovabili (solare, eolica, biomassa)	MJ	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Energia primaria rinnovabile usata come materia prima	PERM	Energia rinnovabile incorporata nei materiali	MJ	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Energia primaria rinnovabile totale	PERT	Somma di PERE + PERM	MJ	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Acqua dolce netta utilizzata	Net use of fresh water	Acqua prelevata meno quella restituita al ciclo idrologico	m^3	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Materie seconde utilizzate	Use of secondary material	Materiali riciclati o riutilizzati impiegati come input	kg	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Combustibili secondari rinnovabili	Use of renewable secondary fuels	Energia da combustibili secondari biogenici	MJ	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Combustibili secondari non rinnovabili	Use of non-renewable secondary fuels	Energia da combustibili secondari fossil	MJ	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Rifiuti pericolosi destinati allo smaltimento	Hazardous waste disposed	Quantità totale di rifiuti pericolosi che sono stati destinati allo smaltimento (es. discarica, incenerimento, etc.)	kg	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Rifiuti non pericolosi destinati allo smaltimento	Non-hazardous waste disposed	Quantità totale di rifiuti non pericolosi destinati allo smaltimento finale.	kg	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Rifiuti radioattivi destinati allo smaltimento	Radioactive waste disposed	Quantità di rifiuti radioattivi generati e destinati a smaltimento sicuro.	kg	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Componenti destinati al riutilizzo	Components for re-use	Quantità di componenti o parti che vengono sottratte al flusso dei rifiuti per essere riutilizzate nel loro stato originale	kg	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Materiali destinati al riciclo	Materials for recycling	Quantità di materiali che sono sottratti al ciclo dei rifiuti e reimmessi in un ciclo produttivo tramite processi di riciclo.	kg	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Materiali destinati al recupero energetico	Materials for energy recovery	Quantità di materiali che non sono riciclati ma utilizzati come combustibile per il recupero di energia.	kg	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Energia esportata – elettricità	Exported energy - electricity	Quantità di energia elettrica prodotta all'interno del sistema e ceduta all'esterno, ad esempio alla rete pubblica.	MJ	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)
Energia esportata – calore	Exported energy - heat	Quantità di energia termica generata dal sistema e fornita per usi esterni (es. reti di teleriscaldamento).	MJ	EN 15804:2012+A2:2019 basato su EF 3.1. (Environmental Footprint 3.1)