

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Low voltage switchgear HECON EVO
AS Harju Elekter

EPD HUB, HUB-7773
Published on 13.10.2026, last updated on 13.10.2026, valid until 12.10.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterisation factors EF 3.1.

Created with One Click LCA

SUSTINERE

GENERAL INFORMATION

MANUFACTURER

Manufacturer	AS Harju Elekter
Address	Keki tn 6/17, Keila, Harjumaa 76606
Contact details	info.ee@harjuelekter.com
Website	https://harjuelekter.com/et/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	This EPD is in line with EN 50693:2019, EN 15804+A2 and ISO 14025.
PCR	EN 50693:2019 in accordance with the CEN standard EN 15804 serves as the core PCR. In addition, the EPD Hub Core PCR Version 1.2, 24 Mar 2025 is used.
Sector	Electrical product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, B6, and modules C1-C4, D
EPD author	Andra Ainsaar, Sustinere OÜ
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Agnieszka Pikus as an authorized verifier for EPD Hub

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	Low voltage switchgear HECON EVO
Product reference	HECON EVO
Place(s) of raw material origin	EU
Place of production	Keila Factory, Estonia
Place(s) of installation and use	Norway
Period for data	29.06.2025-28.06.2026
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%	-
A1-A3 Specific data (%)	98

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 switchboard
Declared unit mass	191,3 kg
Mass of packaging	0 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	955
GWP-total, A1-A3 ($kgCO_2e$)	927
Secondary material, inputs (%)	6,04
Total energy use, A1-A3 (kWh)	4900
Net freshwater use, A1-A3 (m^3)	229

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Harju Elekter Estonia has been providing innovative electrical distribution solutions for over 50 years. Established in 1968 in Estonia, we have grown to become a trusted supplier in the Scandinavian region. We are dedicated to supporting the electrification of society by offering electrical power distribution solutions for utilities, industries, infrastructure, and building projects. We are well known for provider of E-houses, CCS and LV Switchgear solutions. Our portfolio includes turnkey installations and customized products to meet our clients' needs. We strive to ensure our products and solutions are sustainable and future-ready. At Harju Elekter, we value teamwork and continuous improvement. Our team of skilled professionals works hard to create innovative solutions that help our clients succeed.
As part of the Harju Elekter Group, which employs around 900 specialists across Estonia, Finland, Sweden, and Lithuania, we are committed to fostering youth interest in technology and education by providing professional internships. Our vision is to be the most reliable partner for electrical distribution solutions in the Nordic countries. Our mission is to contribute to a more sustainable society by offering future-proof electrical distribution equipment as a trusted partner to our clients.

PRODUCT DESCRIPTION

The declared product is HECON EVO, a premanufactured low-voltage main switchgear system manufactured by Harju Elekter. The product is used for power distribution in industrial facilities, commercial buildings and infrastructure. HECON EVO is designed for main switchgear applications up to 5000 A and provides short-circuit withstand capacity of up to 100 kA RMS. Depending on the configuration, the system provides ingress protection up to IP55 and personnel protection according to IK10 and Form 4b. The product is type-tested according to IEC 61439-1 and IEC 61439-2.

Technical parameter	Value
Form factor	2a, 2b, 3a, 3b, 4a, 4b
Main busbar material	Copper (Cu) or aluminium (Al)
Main busbar current	Up to 5000 A
Distribution busbar current	2600 A
Main busbar short-circuit withstand, Cu (Icw/Ipk)	100 kA for 1 s / 220 kA
Distribution busbar short-circuit withstand, Cu (Icw/Ipk)	70 kA for 1 s / 154 kA
Main busbar short-circuit withstand, Al (Icw/Ipk)	50 kA for 1 s / 110 kA
PE short-circuit withstand, Cu (Icw/Ipk)	65 kA for 1 s / 143 kA
Earthing system	TNC-S, TNC, TNS, IT
Degree of protection	IP2x to IP55

Product properties and further information can be found on the manufacturer's website https://harjuelekter.ee/

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	87	EU
Minerals	0	n/a
Fossil materials	3,6	EU
Bio-based materials	9,4	EE

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	8,1
Biogenic carbon content in packaging, kg C	0

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 switchboard
Mass per declared unit	191,3 kg
Functional unit	To distribute and control electrical power within a low-voltage installation at a rated voltage of 415 V and rated current of 2500 A, from one incoming feeder to up to ten outgoing feeder circuits, operating continuously throughout a reference service life of 25 years. This function is provided by one low-voltage switchgear and controlgear assembly compliant with EN IEC 61439-1 and EN IEC 61439-2.
Reference service life	25 years

Coefficient to calculate results per functional unit

Energy delivered to the consumer in 1 year (MWh)	6820
Energy delivered to the consumer during service life (GWh)	170,5

Calculation to move from declared unit to functional unit:
Value per functional unit = declared unit value / energy delivered to the power distribution network during service life (GWh)

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	x	x	ND	ND	ND	ND	ND	x	ND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Not declared = ND.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the production of raw materials and components used in the HECON EVO switchboard, including steel, copper, wood, cables, paint and electrical devices. The product stage also includes the transport of raw materials and components to the manufacturing site, manufacturing energy and water use, material losses occurring during production, and the treatment of waste generated at the manufacturing facility. The assessment also considers electricity transmission losses. A market-

based approach is used in modelling the electricity mix utilized in the factory. An average grid electricity emission factor is used, representing Estonia's grid carbon intensity (residual mix). Heating is provided to the factory by a local supplier and the fuel used there is considered in the calculations.

The production process of the HECON EVO low-voltage switchgear begins with design and material selection, followed by the procurement of metal sheets, copper components, cables, paint and electrical components. The raw materials and components are transported to Harju Elekter's Keila factory, where electrical components are stored and metal parts are processed. The main components (by mass) are acquired locally as well as internationally. In case of materials procured locally, road transport is used and the transport distances remain below 100 km. For materials procured internationally, mostly road transport is assumed (also container ship for few materials) and the transportation distances reach up to 2000 km, with a weighted average distance of 530 km.

The main metal processing steps include sheet metal stamping, bending and powder coating. After this, the metal structure, busbars, cables and electrical components are assembled according to the project documentation and technical drawings. During the production, material losses occur. These are 29% and 5% for steel and copper, respectively. No losses occur for other components or the losses are negligible. 100% of the metal waste created during the manufacturing is then directed to recycling (based on company's annual waste reporting data). The transport distances of the manufacturing waste to waste treatment facility is 43,6 km.

Before delivery to the customer, the finished switchboard is inspected for quality and compliance with the relevant requirements. No separate packaging materials are used for transport to clients.

TRANSPORT AND INSTALLATION (A4-A5)

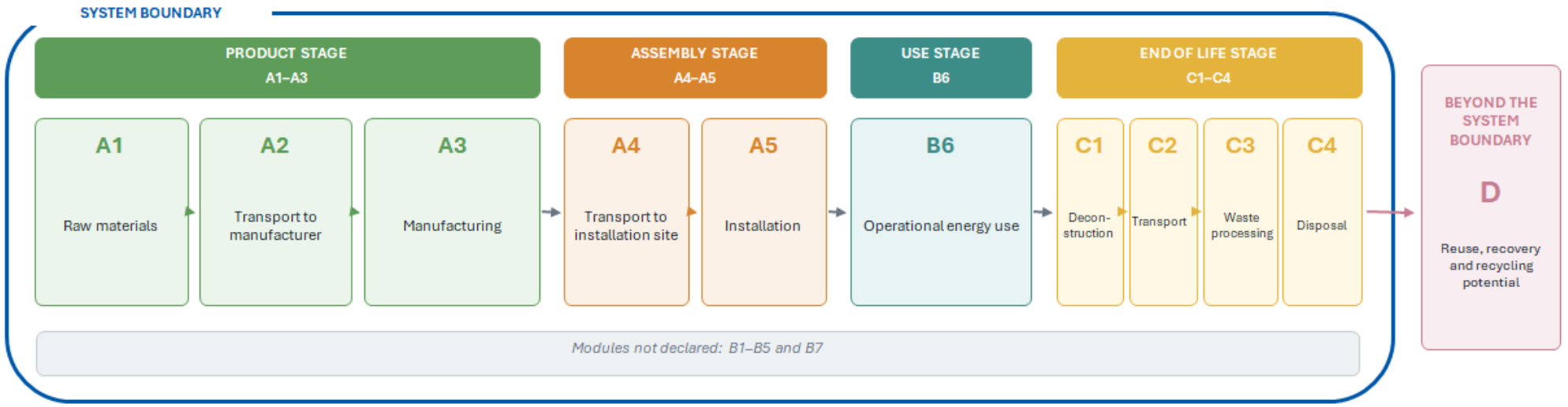
Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions. The transport to the installation site is based on a Norway-specific scenario, since the HECON EVO switchboards included in this study are delivered only to Norway. The declared A4 scenario therefore reflects transport from the Harju Elekter production site to the product's assumed market and installation location in Norway.

Installation is assumed to take place indoors in a building, substation or electrical room where the required infrastructure is already in place. A5 includes diesel for on-site handling/lifting and positioning, and electricity for installation, connection and commissioning activities. Installation losses are assumed to be zero. Small fixing materials are excluded due to their expected negligible contribution.

PRODUCT USE AND MAINTENANCE (B1-B7)

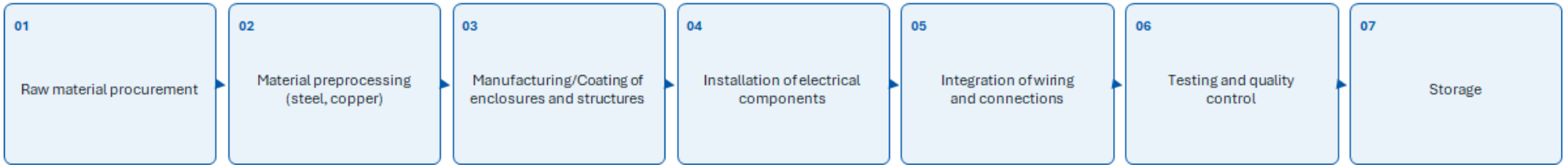
The EPD follows additional requirements for products (permanently installed into building or infrastructure) using energy in module B6. Routine maintenance consists mainly of inspection, cleaning, testing and checking of electrical and mechanical connections. No significant consumables, water use or planned replacement parts are specified for the default maintenance scenario; therefore, B1-B5 and B7 are not modelled separately. Module B6 includes electricity losses caused by electrical resistance in the switchboard components during operation. Based on technical data, a continuous power loss of 3,46 kW per hour is potentially expected, resulting total electricity losses of 757,74 MWh over the 25-year reference service life. Air, soil, and water impacts during the use phase have not been studied.

SYSTEM DIAGRAM



A3 MANUFACTURING PROCESS

Site-specific process at Harju Elekter's Keila factory



PRODUCT END OF LIFE (C1-C4, D)

Given that the HECON EVO switchboards included in this study are delivered to Norway, the end-of-life scenario is modelled according to a Norway-based scenario. It is assumed that 100% of the product waste is collected and transported to a waste treatment facility. In module C1, the expected scenario for deconstruction is that the switchboard is disconnected, lifted or moved from its installation location and loaded for transport. The impacts that occur in C1 are modelled using a conservative approach, i.e. applying the same sources and amounts of energy inputs as used in A5. The end-of-life is modelled based on materials and devices, a significant portion of which is also recycled. The end-of-life treatment pathways and their percentages for the different materials are based on the technical and practical experience that the company possesses. For example – 100% of steel and copper is assumed to be recycled. Small electrical components are expected to be shredded and incinerated. Larger components are expected to be dismantled and recycled.
Additionally, potential benefits are reported separately in module D. The benefits are related with recycling of the end-of-life steel and copper and the electricity and heat exported from incineration in C3. Recycled content already entering the product system is deducted from the recyclable output, which means that the quantity credited in Module D is lower than the total metal quantity sent to recycling in C3. The proportions of material origin (virgin or secondary) that the end-of-life material substitutes on the market is taken from industry association studies (e.g. World Steel Association and The International Copper Association).

LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available, are included in the calculation. No neglected unit process accounts for more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass. The following inputs or activities were excluded from the analysis:

1) Materials that form a part of the product and weigh below 0.2 kg (e.g. plastic straps; small metal attachments, components etc.). The total mass of excluded materials was well below 1% of total switchboard mass.
2) Additional materials (consumables) used during the preparation for and transport of the product and weigh below 1 kg (e.g. single use clamps, plastic foil etc.). The total mass of excluded materials was well below 1% of total switchboard mass.
3) Site preparation in A5.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

VALIDATION OF DATA

Data collection for production and transport was conducted using time- and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterisation factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	Not applicable
Ancillary materials	Not applicable
Manufacturing energy and waste	Physical Properties

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	Not applicable



LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.5. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

- 3rd CEER Report on Power Losses 2025, Council of European Energy Regulators. Accessed on: https://www.ceer.eu/publication/3rd-ceerreport-on-power-losses/
- EN 50693:2019. Product category rules for life cycle assessments of electronic and electrical products and systems
- Garcia-Gutierrez et al., 2023. Environmental and economic assessment of plastic waste recycling. JRC132067, EUR 31423 EN
- International Copper Association. Recycling brief 2022. Accessed on: https://internationalcopper.org/
- Nordic Council of Ministers Report: Current Status of the Waste Incineration Sector in the Nordics, 2024. Accessed on: https://pub.norden.org/temanord2024-524/1-current-status-of-the-waste-incineration-sector-in-the-nordics.html
- Returkraft AS, Accessed on: https://www.returkraft.no/tall-og-fakta
- World Steel Association, Accessed on: https://worldsteel.org/

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2

		Manufacturing				Distribution	Installation	Use							End-of-life stage				
Impact category	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP – total[1)]	kg CO_2e	6,49E+02	1,29E+01	2,65E+02	9,27E+02	3,07E+01	1,46E+01	ND	ND	ND	ND	ND	2,72E+04	ND	1,46E+01	2,18E+00	5,20E+01	2,57E-04	-3,01E+02
GWP – fossil	kg CO_2e	6,78E+02	1,29E+01	2,64E+02	9,55E+02	3,07E+01	1,46E+01	ND	ND	ND	ND	ND	2,70E+04	ND	1,46E+01	2,18E+00	1,62E+01	2,57E-04	-3,02E+02
GWP – biogenic	kg CO_2e	-3,08E+01	2,92E-03	1,08E+00	-2,97E+01	3,82E-03	7,74E-03	ND	ND	ND	ND	ND	-1,14E-13	ND	7,74E-03	4,55E-04	3,58E+01	8,12E-08	1,63E+00
GWP – LULUC	kg CO_2e	1,37E+00	5,74E-03	1,11E-02	1,39E+00	1,37E-02	1,60E-03	ND	ND	ND	ND	ND	1,57E+02	ND	1,60E-03	9,70E-04	3,63E-03	1,46E-07	-4,19E-01
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	2,51E-05	1,87E-07	1,31E-05	3,84E-05	4,46E-07	2,30E-07	ND	ND	ND	ND	ND	7,12E-04	ND	2,30E-07	3,17E-08	3,72E-08	7,49E-12	-8,81E-06
Acidification potential	mol H^+e	1,15E+01	4,53E-02	1,49E+00	1,31E+01	2,48E-01	1,08E-01	ND	ND	ND	ND	ND	2,78E+02	ND	1,08E-01	7,57E-03	2,43E-02	1,77E-06	-1,45E+00
EP-freshwater[2)]	kg Pe	7,73E+00	1,39E-03	3,29E-02	7,76E+00	2,58E-03	2,27E-03	ND	ND	ND	ND	ND	2,87E+01	ND	2,27E-03	2,36E-04	1,98E-03	2,26E-08	-3,82E+00
EP-marine	kg Ne	3,06E+00	1,50E-02	2,05E-01	3,28E+00	9,66E-02	4,79E-02	ND	ND	ND	ND	ND	3,04E+01	ND	4,79E-02	2,50E-03	1,73E-02	7,00E-07	-9,12E-01
EP-terrestrial	mol Ne	4,37E+01	1,63E-01	2,09E+00	4,60E+01	1,06E+00	5,21E-01	ND	ND	ND	ND	ND	3,46E+02	ND	5,21E-01	2,71E-02	7,98E-02	7,62E-06	-1,02E+01
POCP ("smog")[3)]	kg NMVOCe	8,70E+00	6,63E-02	6,28E-01	9,40E+00	3,19E-01	1,56E-01	ND	ND	ND	ND	ND	9,89E+01	ND	1,56E-01	1,11E-02	2,16E-02	2,76E-06	-2,20E+00
ADP-minerals & metals[4)]	kg Sbe	1,83E-01	3,68E-05	7,67E-05	1,83E-01	7,11E-05	2,85E-05	ND	ND	ND	ND	ND	2,92E+00	ND	2,85E-05	6,23E-06	6,99E-05	3,89E-10	-5,60E-02
ADP-fossil resources	MJ	8,71E+03	1,84E+02	3,43E+03	1,23E+04	4,18E+02	2,01E+02	ND	ND	ND	ND	ND	4,47E+05	ND	2,01E+02	3,11E+01	3,64E+01	6,26E-03	-3,63E+03
Water use[5)]	m^3e depr.	4,69E+02	1,07E+00	2,73E+03	3,20E+03	2,03E+00	9,09E-01	ND	ND	ND	ND	ND	8,55E+05	ND	9,09E-01	1,81E-01	2,13E+00	2,76E-04	-2,22E+02

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2

		Manufacturing				Distribution	Installation	Use							End-of-life stage				
Impact category	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Particulate matter	Incidence	3,15E-06	1,26E-06	7,12E-06	1,15E-05	2,28E-06	2,80E-06	ND	ND	ND	ND	ND	1,58E-03	ND	2,80E-06	2,13E-07	2,96E-07	4,15E-11	-9,57E-06
Ionizing radiation[6)]	kBq U235e	1,56E+01	1,54E-01	9,18E+01	1,08E+02	2,95E-01	9,64E-01	ND	ND	ND	ND	ND	1,56E+04	ND	9,64E-01	2,61E-02	4,06E-01	3,62E-06	7,08E+00
Ecotoxicity (freshwater)	CTUe	4,74E+03	3,81E+01	3,24E+02	5,10E+03	7,56E+01	2,18E+01	ND	ND	ND	ND	ND	3,18E+05	ND	2,18E+01	6,45E+00	1,74E+02	7,82E-04	2,36E+03
Human toxicity, cancer	CTUh	2,81E-06	2,03E-09	1,46E-08	2,83E-06	4,94E-09	1,60E-09	ND	ND	ND	ND	ND	3,83E-05	ND	1,60E-09	3,42E-10	4,87E-09	4,49E-14	3,84E-07
Human tox. non-cancer	CTUh	5,73E-06	1,14E-07	1,16E-06	7,00E-06	2,13E-07	5,31E-08	ND	ND	ND	ND	ND	2,41E-03	ND	5,31E-08	1,93E-08	4,11E-07	1,09E-12	5,69E-05
SQP[7)]	-	1,86E+02	1,83E+02	2,57E+02	6,26E+02	3,08E+02	1,60E+01	ND	ND	ND	ND	ND	2,34E+05	ND	1,60E+01	3,10E+01	1,44E+02	1,24E-02	9,24E+02

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

		Manufacturing				Distribution	Installation	Use							End-of-life stage				
Impact category	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Renew. PER as energy[8)]	MJ	4,20E+03	2,55E+00	2,22E+02	4,43E+03	4,95E+00	3,29E+00	ND	ND	ND	ND	ND	3,04E+06	ND	3,29E+00	4,32E-01	-2,46E+02	5,83E-05	-1,06E+03
Renew. PER as material	MJ	1,71E+02	0,00E+00	0,00E+00	1,71E+02	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	-1,71E+02	0,00E+00	-2,19E+01
Total use of renew. PER	MJ	4,37E+03	2,55E+00	2,22E+02	4,60E+03	4,95E+00	3,29E+00	ND	ND	ND	ND	ND	3,04E+06	ND	3,29E+00	4,32E-01	-4,17E+02	5,83E-05	-1,08E+03
Non-re. PER as energy	MJ	8,99E+03	1,84E+02	4,03E+03	1,32E+04	4,18E+02	2,01E+02	ND	ND	ND	ND	ND	4,47E+05	ND	2,01E+02	3,11E+01	-1,24E+02	6,26E-03	-3,56E+03
Non-re. PER as material	MJ	8,39E+00	0,00E+00	0,00E+00	8,39E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	-8,39E+00	0,00E+00	-1,12E+02
Total use of non-re. PER	MJ	9,00E+03	1,84E+02	4,03E+03	1,32E+04	4,18E+02	2,01E+02	ND	ND	ND	ND	ND	4,47E+05	ND	2,01E+02	3,11E+01	-1,32E+02	6,26E-03	-3,67E+03
Secondary materials	kg	1,15E+01	7,70E-02	1,70E-02	1,16E+01	1,74E-01	6,57E-02	ND	ND	ND	ND	ND	5,77E+02	ND	6,57E-02	1,30E-02	6,10E-02	1,56E-06	2,98E+01
Renew. secondary fuels	MJ	9,30E-02	1,00E-03	1,13E-03	9,51E-02	1,75E-03	1,96E-04	ND	ND	ND	ND	ND	2,16E+00	ND	1,96E-04	1,70E-04	4,27E-03	3,27E-08	-2,37E-01
Non-ren. secondary fuels	MJ	5,06E-02	0,00E+00	0,00E+00	5,06E-02	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-8,23E-01
Use of net fresh water	m^3	2,27E+02	2,63E-02	2,36E+00	2,29E+02	4,91E-02	2,16E-02	ND	ND	ND	ND	ND	1,99E+04	ND	2,16E-02	4,46E-03	3,00E-02	6,47E-06	-3,18E+01

8) PER = Primary energy resources.

END OF LIFE – WASTE

		Manufacturing				Distribution	Installation	Use							End-of-life stage				
Impact category	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste	kg	1,44E+02	1,18E+00	6,53E-01	1,46E+02	2,40E+00	1,41E+00	ND	ND	ND	ND	ND	7,77E+04	ND	1,41E+00	1,99E-01	2,72E+00	2,03E-05	7,42E+02
Non-hazardous waste	kg	1,34E+02	2,32E+01	1,17E+02	2,74E+02	4,00E+01	1,21E+01	ND	ND	ND	ND	ND	1,71E+05	ND	1,21E+01	3,93E+00	4,53E+01	4,12E-02	5,43E+02
Radioactive waste	kg	9,29E-02	3,68E-05	9,56E-03	1,02E-01	7,02E-05	2,54E-04	ND	ND	ND	ND	ND	3,39E+00	ND	2,54E-04	6,23E-06	1,02E-04	8,53E-10	-7,45E-03

END OF LIFE – OUTPUT FLOWS

		Manufacturing				Distribution	Installation	Use							End-of-life stage				
Impact category	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	7,83E-01	0,00E+00	4,57E+01	4,64E+01	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	1,67E+02	0,00E+00	-1,47E+01
Materials for energy rec	kg	1,54E-01	0,00E+00	5,02E-19	1,54E-01	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	4,83E+00	0,00E+00	-1,84E-02
Exported energy	MJ	1,49E-01	0,00E+00	0,00E+00	1,49E-01	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	2,68E+02	0,00E+00	-4,93E-01
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	6,71E+01	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	2,01E+02	0,00E+00	0,00E+00

ADDITIONAL INDICATOR – GWP-GHG

		Manufacturing				Distribution	Installation	Use							End-of-life stage				
Impact category	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[9)]	kg CO_2e	6,79E+02	1,29E+01	2,64E+02	9,56E+02	3,07E+01	1,46E+01	ND	ND	ND	ND	ND	2,72E+04	ND	1,46E+01	2,18E+00	1,62E+01	2,57E-04	-3,03E+02

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH4 fossil, CH4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO2 is set to zer

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Electricity, Estonia, residual mix, 2024, Estonia, One Click LCA, 0.60 kgCO2e/kWh
2. Market for heat, district or industrial, natural gas, Europe without Switzerland, Ecoinvent, 0.0542 kgCO2e/MJ

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry, >32 metric ton, diesel, EURO 5, 800 km
2. Market for transport, freight, sea, ferry, heavy fuel oil, 297 km

Transport to the building site (A4) - Scenario documentation

Scenario parameter	Value
Capacity utilization (including empty return) %	61%
Bulk density of transported products, kg/m^3	189,8
Volume capacity utilization factor	1

Installation at the building site (A5) - Scenario documentation

Scenario parameter	Value
Energy: type and consumption (MJ or kWh)	3 liters of diesel (on-site handling or lifting) 6 kWh electricity (electric tools and testing equipment)
Water use (m^3)	0
Ancillary materials: type and mass (kg)	0
Waste materials: type and mass (kg)	0
Waste materials: output routes	0
Direct emissions (kg)	0

Use stages scenario documentation - B6-B7 Use of energy and use of water

Scenario information	Value
Type of energy, consumption (kWh)	Annual losses are 30,31 MWh. With a reference service life of 25 years, total B6 electricity use is 757,74 MWh.

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	191,33
Collection process: Mixed waste (kg)	0
Recovery: re-use (kg)	0
Recovery: recycling (kg)	166,86
Recovery: energy recovery (kg)	22,83
Disposal (kg)	1,64
Scenario assumptions e.g. transportation (mode, km) & other	100 km, road transport, lorry >32t

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools
Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

Agnieszka Pikus as an authorized verifier for EPD Hub Limited

13.10.2026

