Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

Medium Voltage Three Core Underground Cables

AXALJ-TT 36kV

from

Prysmian Group Sverige AB

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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CEN standard EN 15804:2012+A2:2019 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): *PCR 2019:14 Construction products and construction services, version 1.11.*
PCR review was conducted by: *The Technical Committee of the International EPD® System. Review chair: Claudia A. Peña, University of Concepción, Chile. A full list of members available on www.environdec.com. The review panel may be contacted via info@environdec.com.*
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
External independent verifier: Håkan Stripple, IVL Swedish Environmental Research Institute, www.IVL.se e-mail: Hakan.Stripple@IVL.se Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

In accordance with above mentioned PCR for construction products, the International System of Units (SI units) shall be used, the thousand separator and decimal mark shall follow SI style French or English (French herein, i.e. 1 000,00) and a maximum of three significant figures should be applied for the results.

Company information

Owner of the EPD:
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Description of the organisation:
Prysmian Group Sverige AB is part of the Italian cable group Prysmian Group, which is listed on the Milan Stock Exchange. The Group has approximately 29 000 employees in over 50 countries with 106 different factory facilities and a total sales volume of EUR 1,5 billion.

Prysmian Group Sweden has units for development, manufacturing, sales, and warehousing of cable products in Nässjö. Prysmian Group Sweden develops, produces, stocks, and delivers various types of electrical conductors and cables. Approximately 35 % of what is manufactured in Nässjö is sold to other companies within the Group in the Nordic and Baltic countries. The rest goes to the Swedish market. Prysmian Group Sweden also buys and stocks cables that are not manufactured in Sweden from other companies within the Group in Europe and resells it on the Swedish market.

In Sweden, customers range from wholesalers, one-man companies and nationwide installers to public administrations, industrial and electricity network customers.

Product-related or management system-related certifications:
ISO 14001:2015, ISO 45001:2018, ISO 9001:2015

Name and location of production site(s):
Nässjö, Sweden

Product information

Product name:
Medium Voltage underground cable AXALJ-TT 3x50/25 36kV; AXALJ-TT 3x95/35 36kV; AXALJ-TT 3x150/35 36kV; AXALJ-TT 3x240/50 36kV; AXALJ-TT 3x300/50 36kV

Product description:
3-core totally water sealed power cable. Radially water sealed by an aluminum laminate bonded to the outer sheath. Longitudinally water sealed with swellable tapes. Intended for use in power distribution networks.

UN CPC code:
4635 – Other electric conductors, for a voltage exceeding 1000 V.

LCA information

Declared unit:
1 km underground cable with three electrical cores for a voltage of 36kV.

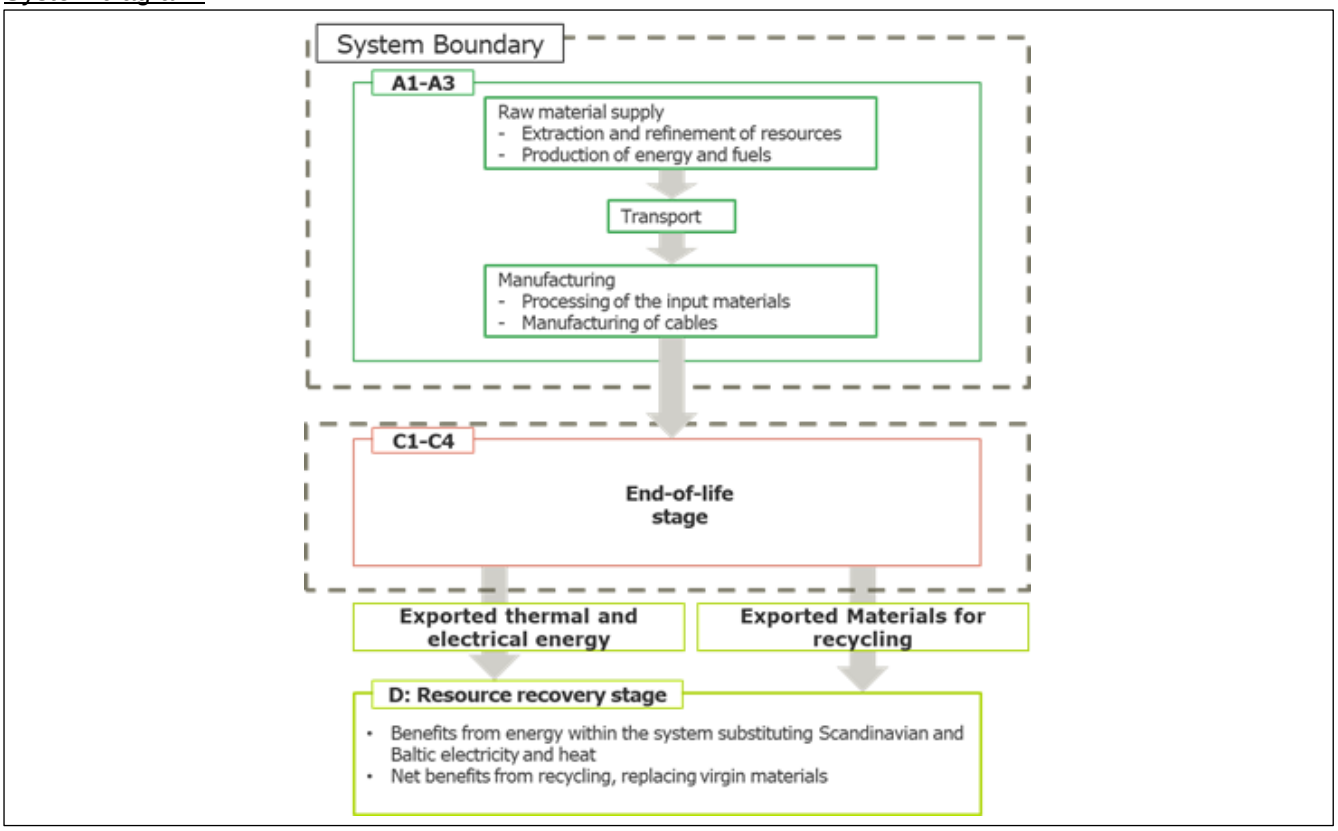
A functional unit is not relevant for this scope and is therefore not included in the LCA or the EPD. Yet, for the selection of the correct cable in the intended application the cables functional properties, such as resistance or capacity are decisive dimensions, which ought to be considered by the net operator. These properties are related to the materials used in the cable as well as the manufacturing processes. Therefore, it could be relevant to introduce a functional unit to increase the comparability of LCA results of cables. Since at the time of development of these EPDs no more information was available, e.g., standardised scenarios for the exemplary dimensioning of the cables, and the LCA does not include the use phase, 1 km cable was considered as most relevant at this point. However, further discussions on the matter are needed in collaboration with other stakeholders of the cable manufacturing sector.

Time representativeness:
Data have been collected in 2021 and represents year 2020. The reference year of the EPD is thus set to 2020.

Database(s) and LCA software used:
LCA calculations were then performed with the LCA software GaBi (version 10.5), using life cycle inventory (LCI) data from GaBi Professional database 2021, GaBi construction material extension database and Ecoinvent 3.7.1.

Description of system boundaries:
The EPD is of the type "Cradle to gate with modules C1–C4 and module D" and thus covers the life cycle modules A1-A3, C and D. The life cycle stages A4-A5 and B1-B7 are thus not included. The system boundaries are described in the system figure where all instances of the figure are included in the assessment and in the section Additional LCA information. Excluded are thus e.g., inventory flows from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process, travelling by personnel and research and development – all in accordance with the PCR 2019:14 and EN 15804.

System diagram:



Product stage, A1-A3:
The product stage comprises the acquisition of all raw materials, products and energy, transport to the production site, production processes, packaging, and waste processing up to the end-of-waste state or final disposal.

More specifically, this module includes the upstream processes of extraction and processing of raw materials and the transportation of the input materials to the production site in Nässjö. Furthermore, it includes the core processes in Nässjö of manufacturing the final product, including the end-of-life treatment of waste generated during manufacturing, as well as impacts from extraction and processing of fuels and auxiliary materials such as lubricating oils, packaging, fuels, and their transportation to the production site. The module also includes the production of purchased electricity and district heating used at the production site.

The manufacturing in Nässjö: Before stranding the cores, the aluminum wire is drawn to the right dimension. Core stranding is followed by insulation extrusion that also cross-links the material. The layup operation puts the three cores together as well as application of aluminum screen wires and swellable tapes. In the last build up phase of the cable application, several steps are carried out such as tape application, both aluminum and swellable, and outer sheath extrusion to finish the full cable body before ending up in final testing. Rewinding to customer lengths can also occur.

End-of-life stage, C1-C4:
The target market of the cables are Scandinavia and the Baltic region; thus, the end-of-life treatment of the cables is modelled for these regions.

The main area of application for the underground cables covered by this EPD is to enable transmission of electricity that is generated at onshore wind parks and within power distribution networks. The common practice today is to leave cables in the ground; however, it might change in the future. Therefore, two possible 100 % scenarios for the end-of-life treatment of the cables are assessed:

Scenario 1: The cables are collected from the ground, when replaced by new cables, and sent to waste treatment.

Scenario 2: The cables are left in the ground and not further treated after their service life.

Scenario 1:

In module C1, the deconstruction of the products covered by this study is considered. The materials in the cable do not have a high monetary value when recycled, therefore, it is assumed that the decommission of the power line will not result in a sole deconstruction of the cable (not yet proven to be economically viable, as set by EN 15804 section 7.3.4). Therefore, it is assumed that a deconstruction would only be commissioned if the cables would be replaced with a new set of cables. The replacement would arguably happen with the same working equipment as used for laying the new cable. Because the energy consumption required to prepare for the disposal of the cable would largely be allocated to the installation of the new cable (performed in the same process), the environmental impact in module C1 was considered negligible.

Module C2 includes the transport between the location where the installation/deconstruction of the cable ends and a waste management plant. Since there are no official figures on average transportation between demolition site and waste management plant, the transport distance is assumed to be 100 km with a diesel driven (average EU-28 diesel mix) truck. As large amounts of cables are transported, a Euro 5 truck-trailer with 34 – 40 tonne gross weight and 27 tonne payload capacity was chosen.

Waste processing, module C3, is included up until end-of-waste state (as defined in PCR 2019:14). The cable is assumed to be shredded and sorted before further processing. The shredded and sorted materials in the cable are not classified as hazardous waste. The plastic share is incinerated in module C3. The burden of the incineration process and the landfilling of incineration residues such as ashes are recorded in C3. The output flows of the incineration are reported as “Exported Electrical Energy (EEE)” and “Exported Thermal Energy (EET)”. The metal parts reach their end-of-waste state in module C3 and leave the system as “Materials for Recycling”. Consequently, no waste flows enter module C4 thus, no environmental impact is recorded in this module.

Table 1. Overview of processes included in end-of-life scenario 1.

Processes	Unit (expressed per declared unit, 1 km cable)				
	AXALJ-TT 3x50/25 AL 36kV	AXALJ-TT 3x95/35 AL 36kV	AXALJ-TT 3x150/35 AL 36kV	AXALJ-TT 3x240/50 AL 36kV	AXALJ-TT 3x300/50 AL 36kV
Collection process specified by type	2 577,5 kg waste cable collected seperately	3 412,1 kg waste cable collected seperately	4 230,8 kg waste cable collected seperately	5 489,3 kg waste cable collected seperately	6 576,5 kg waste cable collected seperately
Recovery system specified by type	540,5 kg for material recycling 2 037 kg for energy recovery	962,7 kg for material recycling 2 449,4 kg for energy recovery	1 413,2 kg for material recycling 2 817,6 kg for energy recovery	2 121,6 kg for material recycling 3 367,7 kg for energy recovery	2 723,4 kg for material recycling 3 853 kg for energy recovery
Assumptions for scenario development, e.g. transportation	100 km Euro 5 truck from construction site to waste treatment plant				

Scenario 2:
In scenario 2, the cable is not removed from the site of installation and consequently not processed either. No environmental impact is recorded in the modules C1, C2 and C3. The disposal site, in this case the ground, is not managed and thus no energy usage can be recorded. There are currently no agreed upon approaches for quantifying emissions from the degrading cable. Therefore, no environmental impact is recorded in module C4.

Scenario 2 includes no end-of-life processes, resulting in no environmental impact in modules C1-C4.

Resource recovery stage, D:
In general, module D includes reuse, recovery and/or recycling potential, expressed as net impact and benefits. In this case, the included processes for each scenario are disclosed below.

Scenario 1:
In this scenario, module D includes the recycling and material recovery of the metals, as well as the benefits of energy flows leaving the assessed system.

For the recovered metals sent to recycling, the burden from the recycling process and net benefit of this recycling is reported in module D. The net benefit consists of the virgin material content replacing alternative material production.

For the recovered energy from the incineration of the shredded plastics, module D reports the benefit of replacing heat and electricity that would have been produced from other sources.

Scenario 2:
Since no waste is collected in this scenario, no reuse, recovery and/or recycling occurs. Thus, no potential burden/benefits are recorded in module D.

Additional LCA information

Cut-off rules:
General cut-off criteria as defined in EN15804 are followed. Life cycle inventory data includes a minimum of 95 % of total inflows (mass and energy) per module.

Allocation:
Several cable products are produced at the manufacturing site in Nässjö. Allocation of site data has been performed based on mass.

LCA practitioners:
Jonathan Klement, David Lindén, Yevgeniya Arushanyan, and David Althoff Palm at Ramboll Sweden AB

Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation:

	Product stage			Construction process stage		Use stage							End-of-life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	SE	SE	SE	-	-	-	-	-	-	-	-	-	Scandinavia and Baltic region	Scandinavia and Baltic region	Scandinavia and Baltic region	Scandinavia and Baltic region	Scandinavia and Baltic region
Specific data used	>90%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-

Content information

Product components	Weight, kg/km					Post-consumer material, weight-%	Renewable material, weight-%
	AXALJ-TT 3x50/25 AL 36kV	AXALJ-TT 3x95/35 AL 36kV	AXALJ-TT 3x150/35 AL 36kV	AXALJ-TT 3x240/50 AL 36kV	AXALJ-TT 3x300/50 AL 36kV		
Aluminum wires	438,23	846,96	1286,72	1982,03	2567,45	0%	0%
Water blocking powder	3,25	3,24	3,23	3,21	3,20	0%	0%
Insulation (XLPE)	1305,20	1561,40	1787,69	2075,43	2289,61	0%	0%
Water blocking tape	53,52	64,71	70,94	97,96	136,23	0%	0%
Rip cord 1 (PET)	2,39	2,55	2,70	2,90	3,03	0%	0%
Filler rod (100 % recycled HD-PE)	116,89	116,66	169,45	205,09	316,47	100%	0%
Rip cord 2 (PET)	2,14	2,14	2,14	2,14	2,14	0%	0%
Aluminum foil with a PE film	110,98	125,59	137,27	151,43	169,24	0%	0%
Adhesive	1,60	1,62	1,60	1,59	1,59	0%	0%
Outer sheath (MD-PE)	543,26	687,23	769,07	967,54	1087,48	0%	0%
TOTAL	2577,46	3412,12	4230,82	5489,32	6576,46	4-5%	0%
Packaging materials	**Weight, kg/km**					**Weight-% (versus the product)**	
Cable drum – Wood	114,58	140,31	171,88	221,77	229,17	3-4%	
TOTAL	114,58	140,31	171,88	221,77	229,17	3-4%	

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
Total	0	0	0%

Environmental Information

The environmental information per km AXALJ-TT cable is presented in the tables below. Reported values for modules C1-C4 and D refer to end-of-life scenario 1. Results for end-of-life scenario 2 are achieved by replacing reported values in C1-C4 and D modules by the value 0.

Potential environmental impact – mandatory indicators according to EN 15804

Results per declared unit – 1 km cable							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
AXALJ-TT 3x50/25 AL 36kV							
GWP-fossil	kg CO_2 eq.	8,87E+03	0,00E+00	1,53E+01	6,40E+03	0,00E+00	-7,33E+03
GWP-biogenic	kg CO_2 eq.	9,61E+01	0,00E+00	1,64E-01	7,87E-01	0,00E+00	-2,60E+01
GWP-luluc kg	kg CO_2 eq.	8,53E+00	0,00E+00	1,26E-01	1,30E-01	0,00E+00	-3,61E+00
GWP-total	kg CO_2 eq.	8,98E+03	0,00E+00	1,56E+01	6,40E+03	0,00E+00	-7,36E+03
ODP	kg CFC 11 eq.	1,81E-04	0,00E+00	3,04E-15	2,10E-12	0,00E+00	9,82E-10
AP	mol H^+ eq.	2,79E+01	0,00E+00	5,11E-02	7,72E-01	0,00E+00	-2,54E+01
EP-freshwater	kg PO_4^{3-} eq.	1,00E+00	0,00E+00	1,41E-04	7,55E-04	0,00E+00	-1,73E-02
EP-freshwater	kg P eq.	3,26E-01	0,00E+00	4,58E-05	2,46E-04	0,00E+00	-5,64E-03
EP-marine	kg N eq.	5,39E+00	0,00E+00	2,35E-02	1,67E-01	0,00E+00	-3,86E+00
EP-terrestrial	mol N eq.	5,57E+01	0,00E+00	2,62E-01	3,31E+00	0,00E+00	-4,19E+01
POCP	kg NMVOC eq.	1,90E+01	0,00E+00	4,61E-02	4,88E-01	0,00E+00	-1,17E+01
ADP-minerals& metals**	kg Sb eq.	3,88E-03	0,00E+00	1,37E-06	2,72E-05	0,00E+00	-9,21E-04
ADP-fossil**	MJ	2,10E+05	0,00E+00	2,05E+02	1,99E+03	0,00E+00	-1,08E+05
WDP**	m^3 eq.	1,07E+03	0,00E+00	1,43E-01	5,94E+02	0,00E+00	-8,89E+02
AXALJ-TT 3x95/35 AL 36kV							
GWP-fossil	kg CO_2 eq.	1,26E+04	0,00E+00	2,03E+01	7,69E+03	0,00E+00	-1,12E+04
GWP-biogenic	kg CO_2 eq.	1,18E+02	0,00E+00	2,17E-01	1,02E+00	0,00E+00	-3,72E+01
GWP-luluc kg	kg CO_2 eq.	1,31E+01	0,00E+00	1,67E-01	1,68E-01	0,00E+00	-5,18E+00
GWP-total	kg CO_2 eq.	1,27E+04	0,00E+00	2,06E+01	7,69E+03	0,00E+00	-1,12E+04
ODP	kg CFC 11 eq.	3,49E-04	0,00E+00	4,03E-15	2,72E-12	0,00E+00	1,77E-09
AP	mol H^+ eq.	4,52E+01	0,00E+00	6,77E-02	9,44E-01	0,00E+00	-4,27E+01
EP-freshwater	kg PO_4^{3-} eq.	1,85E+00	0,00E+00	1,86E-04	9,73E-04	0,00E+00	-2,36E-02
EP-freshwater	kg P eq.	6,03E-01	0,00E+00	6,06E-05	3,17E-04	0,00E+00	-7,68E-03
EP-marine	kg N eq.	8,17E+00	0,00E+00	3,11E-02	2,05E-01	0,00E+00	-6,19E+00
EP-terrestrial	mol N eq.	8,46E+01	0,00E+00	3,47E-01	4,02E+00	0,00E+00	-6,73E+01
POCP	kg NMVOC eq.	2,88E+01	0,00E+00	6,10E-02	5,97E-01	0,00E+00	-1,88E+01
ADP-minerals& metals**	kg Sb eq.	6,43E-03	0,00E+00	1,81E-06	3,50E-05	0,00E+00	-1,34E-03
ADP-fossil**	MJ	2,76E+05	0,00E+00	2,72E+02	2,53E+03	0,00E+00	-1,60E+05
WDP**	m^3 eq.	1,93E+03	0,00E+00	1,89E-01	7,14E+02	0,00E+00	-1,44E+03
AXALJ-TT 3x150/35 AL 36kV							
GWP-fossil	kg CO_2 eq.	1,63E+04	0,00E+00	2,51E+01	8,87E+03	0,00E+00	-1,53E+04
GWP-biogenic	kg CO_2 eq.	1,37E+02	0,00E+00	2,70E-01	1,24E+00	0,00E+00	-4,87E+01
GWP-luluc kg	kg CO_2 eq.	1,78E+01	0,00E+00	2,07E-01	2,05E-01	0,00E+00	-6,79E+00
GWP-total	kg CO_2 eq.	1,64E+04	0,00E+00	2,56E+01	8,87E+03	0,00E+00	-1,53E+04
ODP	kg CFC 11 eq.	5,30E-04	0,00E+00	4,99E-15	3,32E-12	0,00E+00	2,61E-09
AP	mol H^+ eq.	6,31E+01	0,00E+00	8,39E-02	1,10E+00	0,00E+00	-6,12E+01
EP-freshwater	kg PO_4^{3-} eq.	2,76E+00	0,00E+00	2,31E-04	1,19E-03	0,00E+00	-2,99E-02
EP-freshwater	kg P eq.	8,99E-01	0,00E+00	7,52E-05	3,87E-04	0,00E+00	-9,72E-03

EP-marine	kg N eq.	1,10E+01	0,00E+00	3,85E-02	2,40E-01	0,00E+00	-8,65E+00
EP-terrestrial	mol N eq.	1,14E+02	0,00E+00	4,30E-01	4,67E+00	0,00E+00	-9,40E+01
POCP	kg NMVOC eq.	3,87E+01	0,00E+00	7,57E-02	6,98E-01	0,00E+00	-2,64E+01
ADP-minerals& metals**	kg Sb eq.	9,09E-03	0,00E+00	2,24E-06	4,27E-05	0,00E+00	-1,76E-03
ADP-fossil**	MJ	3,35E+05	0,00E+00	3,37E+02	3,06E+03	0,00E+00	-2,14E+05
WDP**	m^3 eq.	2,85E+03	0,00E+00	2,35E-01	8,24E+02	0,00E+00	-2,03E+03
AXALJ-TT 3x240/50 AL 36kV							
GWP-fossil	kg CO_2 eq.	2,22E+04	0,00E+00	3,26E+01	1,06E+04	0,00E+00	-2,15E+04
GWP-biogenic	kg CO_2 eq.	1,67E+02	0,00E+00	3,50E-01	1,58E+00	0,00E+00	-6,64E+01
GWP-luluc kg	kg CO_2 eq.	2,52E+01	0,00E+00	2,68E-01	2,61E-01	0,00E+00	-9,27E+00
GWP-total	kg CO_2 eq.	2,24E+04	0,00E+00	3,32E+01	1,06E+04	0,00E+00	-2,16E+04
ODP	kg CFC 11 eq.	8,17E-04	0,00E+00	6,48E-15	4,24E-12	0,00E+00	3,92E-09
AP	mol H^+ eq.	9,16E+01	0,00E+00	1,09E-01	1,34E+00	0,00E+00	-9,01E+01
EP-freshwater	kg PO_4^{3-} eq.	4,20E+00	0,00E+00	2,99E-04	1,51E-03	0,00E+00	-3,95E-02
EP-freshwater	kg P eq.	1,37E+00	0,00E+00	9,75E-05	4,93E-04	0,00E+00	-1,29E-02
EP-marine	kg N eq.	1,55E+01	0,00E+00	5,00E-02	2,92E-01	0,00E+00	-1,25E+01
EP-terrestrial	mol N eq.	1,61E+02	0,00E+00	5,58E-01	5,64E+00	0,00E+00	-1,36E+02
POCP	kg NMVOC eq.	5,48E+01	0,00E+00	9,82E-02	8,49E-01	0,00E+00	-3,82E+01
ADP-minerals& metals**	kg Sb eq.	1,33E-02	0,00E+00	2,91E-06	5,44E-05	0,00E+00	-2,43E-03
ADP-fossil**	MJ	4,34E+05	0,00E+00	4,37E+02	3,86E+03	0,00E+00	-2,97E+05
WDP**	m^3 eq.	4,31E+03	0,00E+00	3,05E-01	9,87E+02	0,00E+00	-2,94E+03
AXALJ-TT 3x300/50 AL 36kV							
GWP-fossil	kg CO_2 eq.	2,72E+04	0,00E+00	3,90E+01	1,21E+04	0,00E+00	-2,69E+04
GWP-biogenic	kg CO_2 eq.	1,90E+02	0,00E+00	4,19E-01	1,87E+00	0,00E+00	-8,16E+01
GWP-luluc kg	kg CO_2 eq.	3,14E+01	0,00E+00	3,21E-01	3,10E-01	0,00E+00	-1,14E+01
GWP-total	kg CO_2 eq.	2,74E+04	0,00E+00	3,98E+01	1,21E+04	0,00E+00	-2,70E+04
ODP	kg CFC 11 eq.	1,06E-03	0,00E+00	7,76E-15	5,04E-12	0,00E+00	5,05E-09
AP	mol H^+ eq.	1,16E+02	0,00E+00	1,30E-01	1,55E+00	0,00E+00	-1,15E+02
EP-freshwater	kg PO_4^{3-} eq.	5,40E+00	0,00E+00	3,59E-04	1,79E-03	0,00E+00	-4,78E-02
EP-freshwater	kg P eq.	1,76E+00	0,00E+00	1,17E-04	5,85E-04	0,00E+00	-1,56E-02
EP-marine	kg N eq.	1,94E+01	0,00E+00	5,99E-02	3,38E-01	0,00E+00	-1,58E+01
EP-terrestrial	mol N eq.	2,01E+02	0,00E+00	6,69E-01	6,49E+00	0,00E+00	-1,71E+02
POCP	kg NMVOC eq.	6,82E+01	0,00E+00	1,18E-01	9,83E-01	0,00E+00	-4,83E+01
ADP-minerals& metals**	kg Sb eq.	1,69E-02	0,00E+00	3,49E-06	6,45E-05	0,00E+00	-2,99E-03
ADP-fossil**	MJ	5,14E+05	0,00E+00	5,24E+02	4,55E+03	0,00E+00	-3,69E+05
WDP**	m^3 eq.	5,56E+03	0,00E+00	3,65E-01	1,13E+03	0,00E+00	-3,72E+03
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption						

*** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Potential environmental impact – additional mandatory and voluntary indicators

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
AXALJ-TT 3x50/25 AL 36kV							
GWP-GHG[1]	kg CO_2 eq.	8,73E+03	0,00E+00	1,51E+01	6,40E+03	0,00E+00	-7,28E+03
AXALJ-TT 3x95/35 AL 36kV							
GWP-GHG	kg CO_2 eq.	1,24E+04	0,00E+00	2,00E+01	7,69E+03	0,00E+00	-1,11E+04
AXALJ-TT 3x150/35 AL 36kV							
GWP-GHG	kg CO_2 eq.	1,60E+04	0,00E+00	2,48E+01	8,87E+03	0,00E+00	-1,52E+04
AXALJ-TT 3x240/50 AL 36kV							
GWP-GHG	kg CO_2 eq.	2,18E+04	0,00E+00	3,22E+01	1,06E+04	0,00E+00	-2,14E+04
AXALJ-TT 3x300/50 AL 36kV							
GWP-GHG	kg CO_2 eq.	2,67E+04	0,00E+00	3,86E+01	1,21E+04	0,00E+00	-2,67E+04

Use of resources

Results per declared unit – 1 km cable							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
AXALJ-TT 3x50/25 AL 36kV							
PERE	MJ	7,17E+04	0,00E+00	1,18E+01	7,09E+02	0,00E+00	-3,70E+04
PERM	MJ	2,06E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	7,37E+04	0,00E+00	1,18E+01	7,09E+02	0,00E+00	-3,70E+04
PENRE	MJ	1,19E+05	0,00E+00	2,06E+02	1,99E+03	0,00E+00	-1,08E+05
PENRM	MJ	9,17E+04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,10E+05	0,00E+00	2,06E+02	1,99E+03	0,00E+00	-1,08E+05
SM	kg	1,47E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	6,58E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	1,78E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	9,95E+01	0,00E+00	1,35E-02	1,42E+01	0,00E+00	-7,55E+01
AXALJ-TT 3x95/35 AL 36kV							
PERE	MJ	1,16E+05	0,00E+00	1,56E+01	9,19E+02	0,00E+00	-5,87E+04
PERM	MJ	2,53E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,18E+05	0,00E+00	1,56E+01	9,19E+02	0,00E+00	-5,87E+04
PENRE	MJ	1,65E+05	0,00E+00	2,73E+02	2,53E+03	0,00E+00	-1,60E+05
PENRM	MJ	1,11E+05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,76E+05	0,00E+00	2,73E+02	2,53E+03	0,00E+00	-1,60E+05
SM	kg	1,50E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	8,72E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	2,36E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,68E+02	0,00E+00	1,79E-02	1,71E+01	0,00E+00	-1,27E+02
AXALJ-TT 3x150/35 AL 36kV							
PERE	MJ	1,62E+05	0,00E+00	1,94E+01	1,12E+03	0,00E+00	-8,15E+04
PERM	MJ	3,09E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,65E+05	0,00E+00	1,94E+01	1,12E+03	0,00E+00	-8,15E+04

[1] The indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

PENRE	MJ	2,07E+05	0,00E+00	3,38E+02	3,06E+03	0,00E+00	-2,14E+05
PENRM	MJ	1,28E+05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,35E+05	0,00E+00	3,38E+02	3,06E+03	0,00E+00	-2,14E+05
SM	kg	2,17E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	1,08E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	2,92E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	2,41E+02	0,00E+00	2,22E-02	1,98E+01	0,00E+00	-1,82E+02
AXALJ-TT 3x240/50 AL 36kV							
PERE	MJ	2,35E+05	0,00E+00	2,52E+01	1,44E+03	0,00E+00	-1,17E+05
PERM	MJ	3,99E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,39E+05	0,00E+00	2,52E+01	1,44E+03	0,00E+00	-1,17E+05
PENRE	MJ	2,77E+05	0,00E+00	4,39E+02	3,86E+03	0,00E+00	-2,97E+05
PENRM	MJ	1,58E+05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	4,35E+05	0,00E+00	4,39E+02	3,86E+03	0,00E+00	-2,97E+05
SM	kg	2,71E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	1,40E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	3,79E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	3,57E+02	0,00E+00	2,88E-02	2,37E+01	0,00E+00	-2,68E+02
AXALJ-TT 3x300/50 AL 36kV							
PERE	MJ	2,97E+05	0,00E+00	3,01E+01	1,71E+03	0,00E+00	-1,48E+05
PERM	MJ	4,13E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	3,01E+05	0,00E+00	3,01E+01	1,71E+03	0,00E+00	-1,48E+05
PENRE	MJ	3,32E+05	0,00E+00	5,26E+02	4,55E+03	0,00E+00	-3,69E+05
PENRM	MJ	1,83E+05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,14E+05	0,00E+00	5,26E+02	4,55E+03	0,00E+00	-3,69E+05
SM	kg	4,18E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	1,68E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	4,54E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	4,54E+02	0,00E+00	3,45E-02	2,72E+01	0,00E+00	-3,42E+02
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

Waste production and output flows

Waste production

Results per declared unit – 1 km cable							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
AXALJ-TT 3x50/25 AL 36kV							
Hazardous waste disposed	kg	4,39E-05	0,00E+00	1,09E-08	4,58E-07	0,00E+00	-1,59E-05
Non-hazardous waste disposed	kg	1,04E+03	0,00E+00	3,23E-02	2,73E+01	0,00E+00	-1,31E+03
Radioactive waste disposed	kg	2,72E+00	0,00E+00	3,74E-04	2,24E-01	0,00E+00	-7,10E+00
AXALJ-TT 3x95/35 AL 36kV							
Hazardous waste disposed	kg	6,31E-05	0,00E+00	1,44E-08	5,88E-07	0,00E+00	-2,11E-05
Non-hazardous waste disposed	kg	1,72E+03	0,00E+00	4,28E-02	3,22E+01	0,00E+00	-2,31E+03
Radioactive waste disposed	kg	3,46E+00	0,00E+00	4,95E-04	2,90E-01	0,00E+00	-1,04E+01
AXALJ-TT 3x150/35 AL 36kV							
Hazardous waste disposed	kg	8,20E-05	0,00E+00	1,78E-08	7,15E-07	0,00E+00	-2,63E-05
Non-hazardous waste disposed	kg	2,44E+03	0,00E+00	5,31E-02	3,72E+01	0,00E+00	-3,38E+03
Radioactive waste disposed	kg	4,25E+00	0,00E+00	6,13E-04	3,55E-01	0,00E+00	-1,37E+01
AXALJ-TT 3x240/50 AL 36kV							
Hazardous waste disposed	kg	1,12E-04	0,00E+00	2,31E-08	9,08E-07	0,00E+00	-3,42E-05
Non-hazardous waste disposed	kg	3,57E+03	0,00E+00	6,88E-02	4,48E+01	0,00E+00	-5,05E+03
Radioactive waste disposed	kg	5,42E+00	0,00E+00	7,96E-04	4,55E-01	0,00E+00	-1,89E+01
AXALJ-TT 3x300/50 AL 36kV							
Hazardous waste disposed	kg	1,37E-04	0,00E+00	2,77E-08	1,08E-06	0,00E+00	-4,10E-05
Non-hazardous waste disposed	kg	4,54E+03	0,00E+00	8,25E-02	5,14E+01	0,00E+00	-6,49E+03
Radioactive waste disposed	kg	6,57E+00	0,00E+00	9,54E-04	5,41E-01	0,00E+00	-2,34E+01

Output flows

Results per declared unit – 1 km cable							
Indicator	**Unit**	**A1-3**	**C1**	**C2**	**C3**	**C4**	**D**
AXALJ-TT 3x50/25 AL 36kV							
Components for re-use	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Material for recycling	kg	1,0E+02	0,0E+00	0,0E+00	5,4E+02	0,0E+00	0,0E+00
Materials for energy recovery	kg	1,2E+02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Exported energy, electricity	MJ	0,0E+00	0,0E+00	0,0E+00	1,3E+04	0,0E+00	0,0E+00
Exported energy, thermal	MJ	0,0E+00	0,0E+00	0,0E+00	2,4E+04	0,0E+00	0,0E+00
AXALJ-TT 3x95/35 AL 36kV							
Components for re-use	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Material for recycling	kg	1,5E+02	0,0E+00	0,0E+00	9,6E+02	0,0E+00	0,0E+00
Materials for energy recovery	kg	1,4E+02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Exported energy, electricity	MJ	0,0E+00	0,0E+00	0,0E+00	1,6E+04	0,0E+00	0,0E+00
Exported energy, thermal	MJ	0,0E+00	0,0E+00	0,0E+00	2,9E+04	0,0E+00	0,0E+00
AXALJ-TT 3x150/35 AL 36kV							
Components for re-use	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Material for recycling	kg	1,9E+02	0,0E+00	0,0E+00	1,4E+03	0,0E+00	0,0E+00
Materials for energy recovery	kg	1,7E+02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Exported energy, electricity	MJ	0,0E+00	0,0E+00	0,0E+00	1,9E+04	0,0E+00	0,0E+00
Exported energy, thermal	MJ	0,0E+00	0,0E+00	0,0E+00	3,3E+04	0,0E+00	0,0E+00
AXALJ-TT 3x240/50 AL 36kV							
Components for re-use	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Material for recycling	kg	3,3E+02	0,0E+00	0,0E+00	2,1E+03	0,0E+00	0,0E+00
Materials for energy recovery	kg	2,2E+02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Exported energy, electricity	MJ	0,0E+00	0,0E+00	0,0E+00	2,2E+04	0,0E+00	0,0E+00
Exported energy, thermal	MJ	0,0E+00	0,0E+00	0,0E+00	3,9E+04	0,0E+00	0,0E+00
AXALJ-TT 3x300/50 AL 36kV							
Components for re-use	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Material for recycling	kg	4,4E+02	0,0E+00	0,0E+00	2,7E+03	0,0E+00	0,0E+00
Materials for energy recovery	kg	2,3E+02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Exported energy, electricity	MJ	0,0E+00	0,0E+00	0,0E+00	2,5E+04	0,0E+00	0,0E+00
Exported energy, thermal	MJ	0,0E+00	0,0E+00	0,0E+00	4,5E+04	0,0E+00	0,0E+00

Information on biogenic carbon content

Results per declared unit – 1 km cable						
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**				
		AXALJ-TT 3x50/25 AL 36kV	AXALJ-TT 3x95/35 AL 36kV	AXALJ-TT 3x150/35 AL 36kV	AXALJ-TT 3x240/50 AL 36kV	AXALJ-TT 3x300/50 AL 36kV
Biogenic carbon content in product	kg C	0	0	0	0	0
Biogenic carbon content in packaging	kg C	6,05E+01	7,40E+01	9,07E+01	1,17E+02	1,21E+02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

References

- Klement, J., Lindén, D., Arushanyan, Y., Althoff Palm, D. Underlying LCA for Environmental Product Declaration EPD® - Medium Voltage Underground Cables. Ramboll, 2021.
- General Programme Instructions of the International EPD® System. Version 3.01.
- PCR 2019:14 Construction products, version 1.11.
- EN 15804:2012+A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.
- ISO 14025 on Type III Environmental declarations.
- ISO 14040 and ISO 14044 on Life Cycle Assessments (LCA).

Annex A – Results in accordance with Preceding Standard EN15804 + A1

LCIA, resource use (LCI) and End-of-life (LCI) results for underground cable of the AXALJ-TT product family in accordance with EN15804+A1

Environmental Impact for 1 km underground cable of the AXALJ-TT product family							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
AXALJ-TT 3x50/25 AL 36kV							
Global warming potential (GWP)	kg CO_2 eq.	8,70E+03	0,00E+00	1,52E+01	6,40E+03	0,00E+00	-7,26E+03
Ozone Depletion Potential (ODP)	kg R11 eq.	1,53E-04	0,00E+00	4,06E-15	2,80E-12	0,00E+00	1,82E-09
Acidification potential (AP)	kg SO_2 eq.	2,32E+01	0,00E+00	3,53E-02	4,94E-01	0,00E+00	-2,15E+01
Eutrophication potential (EP)	kg Phosphate eq.	3,27E+00	0,00E+00	8,49E-03	9,98E-02	0,00E+00	-1,44E+00
Photochemical Ozone Creation Potential (POCP)	kg Ethene eq.	2,80E+00	0,00E+00	-1,24E-02	5,03E-02	0,00E+00	-1,34E+00
Abiotic depletion potential for non-fossil resources (ADPE)	kg Sb eq.	3,90E-03	0,00E+00	1,37E-06	2,85E-05	0,00E+00	-9,66E-04
Abiotic depletion potential for fossil resources (ADPF)	MJ	2,02E+05	0,00E+00	2,03E+02	1,41E+03	0,00E+00	-8,91E+04
AXALJ-TT 3x95/35 AL 36kV							
Global warming potential (GWP)	kg CO_2 eq.	1,24E+04	0,00E+00	2,01E+01	7,69E+03	0,00E+00	-1,11E+04
Ozone Depletion Potential (ODP)	kg CO_2 eq.	2,97E-04	0,00E+00	5,37E-15	3,63E-12	0,00E+00	3,26E-09
Acidification potential (AP)	kg CO_2 eq.	3,77E+01	0,00E+00	4,67E-02	6,07E-01	0,00E+00	-3,63E+01
Eutrophication potential (EP)	kg CO_2 eq.	5,31E+00	0,00E+00	1,12E-02	1,22E-01	0,00E+00	-2,28E+00
Photochemical Ozone Creation Potential (POCP)	kg CFC 11 eq.	4,43E+00	0,00E+00	-1,64E-02	6,15E-02	0,00E+00	-2,19E+00
Abiotic depletion potential for non-fossil resources (ADPE)	mol H^+ eq.	6,45E-03	0,00E+00	1,81E-06	3,68E-05	0,00E+00	-1,40E-03
Abiotic depletion potential for fossil resources (ADPF)	kg PO_4^{3-} eq.	2,65E+05	0,00E+00	2,69E+02	1,79E+03	0,00E+00	-1,33E+05
AXALJ-TT 3x150/35 AL 36kV							
Global warming potential (GWP)	kg CO_2 eq.	1,60E+04	0,00E+00	2,49E+01	8,87E+03	0,00E+00	-1,51E+04
Ozone Depletion Potential (ODP)	kg CO_2 eq.	4,51E-04	0,00E+00	6,66E-15	4,43E-12	0,00E+00	4,81E-09
Acidification potential (AP)	kg CO_2 eq.	5,28E+01	0,00E+00	5,80E-02	7,13E-01	0,00E+00	-5,21E+01
Eutrophication potential (EP)	kg CO_2 eq.	7,43E+00	0,00E+00	1,39E-02	1,42E-01	0,00E+00	-3,17E+00
Photochemical Ozone Creation Potential (POCP)	kg CFC 11 eq.	6,11E+00	0,00E+00	-2,03E-02	7,20E-02	0,00E+00	-3,09E+00
Abiotic depletion potential for non-fossil resources (ADPE)	mol H^+ eq.	9,12E-03	0,00E+00	2,25E-06	4,49E-05	0,00E+00	-1,85E-03
Abiotic depletion potential for fossil resources (ADPF)	kg PO_4^{3-} eq.	3,21E+05	0,00E+00	3,34E+02	2,14E+03	0,00E+00	-1,78E+05
AXALJ-TT 3x240/50 AL 36kV							
Global warming potential (GWP)	kg CO_2 eq.	2,18E+04	0,00E+00	3,23E+01	1,06E+04	0,00E+00	-2,14E+04
Ozone Depletion Potential (ODP)	kg CO_2 eq.	6,94E-04	0,00E+00	8,64E-15	5,66E-12	0,00E+00	7,24E-09
Acidification potential (AP)	kg CO_2 eq.	7,69E+01	0,00E+00	7,52E-02	8,71E-01	0,00E+00	-7,67E+01
Eutrophication potential (EP)	kg CO_2 eq.	1,08E+01	0,00E+00	1,81E-02	1,72E-01	0,00E+00	-4,56E+00
Photochemical Ozone Creation Potential (POCP)	kg CFC 11 eq.	8,80E+00	0,00E+00	-2,63E-02	8,76E-02	0,00E+00	-4,49E+00
Abiotic depletion potential for non-fossil resources (ADPE)	mol H^+ eq.	1,33E-02	0,00E+00	2,91E-06	5,72E-05	0,00E+00	-2,55E-03
Abiotic depletion potential for fossil resources (ADPF)	kg PO_4^{3-} eq.	4,16E+05	0,00E+00	4,33E+02	2,69E+03	0,00E+00	-2,47E+05
AXALJ-TT 3x300/50 AL 36kV							

Global warming potential (GWP)	kg CO_2 eq.	2,66E+04	0,00E+00	3,87E+01	1,21E+04	0,00E+00	-2,67E+04
Ozone Depletion Potential (ODP)	kg CO_2 eq.	8,99E-04	0,00E+00	1,04E-14	6,72E-12	0,00E+00	9,31E-09
Acidification potential (AP)	kg CO_2 eq.	9,73E+01	0,00E+00	9,01E-02	1,01E+00	0,00E+00	-9,78E+01
Eutrophication potential (EP)	kg CO_2 eq.	1,37E+01	0,00E+00	2,17E-02	1,98E-01	0,00E+00	-5,74E+00
Photochemical Ozone Creation Potential (POCP)	kg CFC 11 eq.	1,11E+01	0,00E+00	-3,16E-02	1,01E-01	0,00E+00	-5,70E+00
Abiotic depletion potential for non-fossil resources (ADPE)	mol H^+ eq.	1,69E-02	0,00E+00	3,49E-06	6,79E-05	0,00E+00	-3,15E-03
Abiotic depletion potential for fossil resources (ADPF)	kg PO_4^{3-} eq.	4,92E+05	0,00E+00	5,19E+02	3,16E+03	0,00E+00	-3,07E+05

Resource Use for 1 km underground cable of the AXALJ-TT product family

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
AXALJ-TT 3x50/25 AL 36kV							
PERE	MJ	7,17E+04	0,00E+00	1,18E+01	7,09E+02	0,00E+00	-3,70E+04
PERM	MJ	2,06E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	7,37E+04	0,00E+00	1,18E+01	7,09E+02	0,00E+00	-3,70E+04
PENRE	MJ	1,19E+05	0,00E+00	2,06E+02	1,99E+03	0,00E+00	-1,08E+05
PENRM	MJ	9,17E+04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,10E+05	0,00E+00	2,06E+02	1,99E+03	0,00E+00	-1,08E+05
SM	kg	1,47E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	6,58E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	1,78E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	9,95E+01	0,00E+00	1,35E-02	1,42E+01	0,00E+00	-7,55E+01
AXALJ-TT 3x95/35 AL 36kV							
PERE	MJ	1,16E+05	0,00E+00	1,56E+01	9,19E+02	0,00E+00	-5,87E+04
PERM	MJ	2,53E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,18E+05	0,00E+00	1,56E+01	9,19E+02	0,00E+00	-5,87E+04
PENRE	MJ	1,65E+05	0,00E+00	2,73E+02	2,53E+03	0,00E+00	-1,60E+05
PENRM	MJ	1,11E+05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,76E+05	0,00E+00	2,73E+02	2,53E+03	0,00E+00	-1,60E+05
SM	kg	1,50E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	8,72E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	2,36E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,68E+02	0,00E+00	1,79E-02	1,71E+01	0,00E+00	-1,27E+02
AXALJ-TT 3x150/35 AL 36kV							
PERE	MJ	1,62E+05	0,00E+00	1,94E+01	1,12E+03	0,00E+00	-8,15E+04
PERM	MJ	3,09E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,65E+05	0,00E+00	1,94E+01	1,12E+03	0,00E+00	-8,15E+04
PENRE	MJ	2,07E+05	0,00E+00	3,38E+02	3,06E+03	0,00E+00	-2,14E+05
PENRM	MJ	1,28E+05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,35E+05	0,00E+00	3,38E+02	3,06E+03	0,00E+00	-2,14E+05
SM	kg	2,17E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	1,08E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	2,92E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	2,41E+02	0,00E+00	2,22E-02	1,98E+01	0,00E+00	-1,82E+02
AXALJ-TT 3x240/50 AL 36kV							
PERE	MJ	2,35E+05	0,00E+00	2,52E+01	1,44E+03	0,00E+00	-1,17E+05
PERM	MJ	3,99E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,39E+05	0,00E+00	2,52E+01	1,44E+03	0,00E+00	-1,17E+05
PENRE	MJ	2,77E+05	0,00E+00	4,39E+02	3,86E+03	0,00E+00	-2,97E+05
PENRM	MJ	1,58E+05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

PENRT	MJ	4,35E+05	0,00E+00	4,39E+02	3,86E+03	0,00E+00	-2,97E+05
SM	kg	2,71E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	1,40E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	3,79E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	3,57E+02	0,00E+00	2,88E-02	2,37E+01	0,00E+00	-2,68E+02
AXALJ-TT 3x300/50 AL 36kV							
PERE	MJ	2,97E+05	0,00E+00	3,01E+01	1,71E+03	0,00E+00	-1,48E+05
PERM	MJ	4,13E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	3,01E+05	0,00E+00	3,01E+01	1,71E+03	0,00E+00	-1,48E+05
PENRE	MJ	3,32E+05	0,00E+00	5,26E+02	4,55E+03	0,00E+00	-3,69E+05
PENRM	MJ	1,83E+05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,14E+05	0,00E+00	5,26E+02	4,55E+03	0,00E+00	-3,69E+05
SM	kg	4,18E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	1,68E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	4,54E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	4,54E+02	0,00E+00	3,45E-02	2,72E+01	0,00E+00	-3,42E+02

End of life – Waste and Output flow for 1 km underground cable of the AXALJ-TT product family

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
AXALJ-TT 3x50/25 AL 36kV							
Hazardous waste disposed (HWD)	kg	4,39E-05	0,00E+00	1,09E-08	4,58E-07	0,00E+00	-1,59E-05
Non-hazardous waste disposed (NHWD)	kg	1,04E+03	0,00E+00	3,23E-02	2,73E+01	0,00E+00	-1,31E+03
Radioactive waste disposed (RWD)	kg	2,72E+00	0,00E+00	3,74E-04	2,24E-01	0,00E+00	-7,10E+00
Materials for Recycling (MFR)	kg	1,02E+02	0,00E+00	0,00E+00	5,41E+02	0,00E+00	0,00E+00
Material for Energy Recovery (MER)	kg	1,15E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
AXALJ-TT 3x95/35 AL 36kV							
Hazardous waste disposed (HWD)	kg	6,31E-05	0,00E+00	1,44E-08	5,88E-07	0,00E+00	-2,11E-05
Non-hazardous waste disposed (NHWD)	kg	1,72E+03	0,00E+00	4,28E-02	3,22E+01	0,00E+00	-2,31E+03
Radioactive waste disposed (RWD)	kg	3,46E+00	0,00E+00	4,95E-04	2,90E-01	0,00E+00	-1,04E+01
Materials for Recycling (MFR)	kg	1,53E+02	0,00E+00	0,00E+00	9,62E+02	0,00E+00	0,00E+00
Material for Energy Recovery (MER)	kg	1,40E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
AXALJ-TT 3x150/35 AL 36kV							
Hazardous waste disposed (HWD)	kg	8,20E-05	0,00E+00	1,78E-08	7,15E-07	0,00E+00	-2,63E-05
Non-hazardous waste disposed (NHWD)	kg	2,44E+03	0,00E+00	5,31E-02	3,72E+01	0,00E+00	-3,38E+03
Radioactive waste disposed (RWD)	kg	4,25E+00	0,00E+00	6,13E-04	3,55E-01	0,00E+00	-1,37E+01
Materials for Recycling (MFR)	kg	1,85E+02	0,00E+00	0,00E+00	1,41E+03	0,00E+00	0,00E+00
Material for Energy Recovery (MER)	kg	1,72E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
AXALJ-TT 3x240/50 AL 36kV							
Hazardous waste disposed (HWD)	kg	1,12E-04	0,00E+00	2,31E-08	9,08E-07	0,00E+00	-3,42E-05
Non-hazardous waste disposed (NHWD)	kg	3,57E+03	0,00E+00	6,88E-02	4,48E+01	0,00E+00	-5,05E+03
Radioactive waste disposed (RWD)	kg	5,42E+00	0,00E+00	7,96E-04	4,55E-01	0,00E+00	-1,89E+01
Materials for Recycling (MFR)	kg	3,28E+02	0,00E+00	0,00E+00	2,12E+03	0,00E+00	0,00E+00
Material for Energy Recovery (MER)	kg	2,22E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
AXALJ-TT 3x300/50 AL 36kV							
Hazardous waste disposed (HWD)	kg	1,37E-04	0,00E+00	2,77E-08	1,08E-06	0,00E+00	-4,10E-05
Non-hazardous waste disposed (NHWD)	kg	4,54E+03	0,00E+00	8,25E-02	5,14E+01	0,00E+00	-6,49E+03

Radioactive waste disposed (RWD)	kg	6,57E+00	0,00E+00	9,54E-04	5,41E-01	0,00E+00	-2,34E+01
Materials for Recycling (MFR)	kg	4,35E+02	0,00E+00	0,00E+00	2,72E+03	0,00E+00	0,00E+00
Material for Energy Recovery (MER)	kg	2,29E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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