Jiangsu Zhongtian Technology Co.,Ltd.

ACSR

2021 12 30

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1 LCA

1.1 General aspects

ISO14040/44 2006 , PCR EN 15804 2012+ A1:2013; NPCR 027 – Part B for electrical cables and wires, version 1.0

LCA

1) EPD B2C .

2 ACSR

3 ACSR

4

5 GWP

6 LCA

LCA ZTT LCA

7 LCA 2021 12 30

1.2

ZTT ACSR

1-1

1-1

	ACSR 26-3.44+7-2.68 (EN 50182) ACSR 26-3.72+7-2.89 (ASTM B232) ACSR 26-4.44+7-3.45 (ASTM B232) ACSR 45-3.38+7-2.25 (EN 50182) ACSR 54-3.65+19-2.19(EN 50182) ACSR 54-7-2.68 (EN 50182) ACSR 54-7-3.08 (EN 50182)

	-40 ~50 10kV~500kV
	40
	977KG/KM-1626.5 KG/KM
	+
	+ +
Conductor diameter	21.8MM- 32.85MM
Max. DC Resistance at 20	0.0512 Ω/km-0.1195 Ω/km

1.3

1m ACSR (7) 1

ACSR

ZTT ACSR -40 ~50

10kV~500kV ACSR

1m ACSR 7

ACSR 26-3.44+7-2.68 (EN 50182)

ACSR 26-3.72+7-2.89 (ASTM B232)

ACSR 26-4.44+7-3.45 (ASTM B232)

ACSR 45-3.38+7-2.25 (EN 50182)

ACSR 54-3.65+19-2.19(EN 50182)

ACSR 54-7-2.68 (EN 50182)

ACSR 54-7-3.08 (EN 50182)

ZTT LCA

LCA 90%

1.4.2 BOM

ACSR 7 BOM 1-2~ 1-8. ZTT

□ □ □ □□ □ □□□ □

	kg/m	-%
/ &	6.683E-01	68.4%
/	3.087E-01	31.6%
	9.770E-01	100.0%
	kg /m	-% ( )
	3.640E-02	3.7%
	4.510E-02	4.6%
	1.000E-03	0.1%
	8.250E-02	8.4%

□ □ □ □ □ □□□ □

	kg/m	-%
/ &	7.799E-01	68.4%
/	3.598E-01	31.6%
	1.139E+00	100.0%
	kg /m	-% ( )
		3.7%
	3.893E-02	
-02		

	1.370E-03	0.1%
	1.490E-01	9.2%

□□ □ □ □□ □

	kg/m	-%
/ &	1.115E+00	83.6%
/	2.187E-01	

	4.680E-02	3.1%
	1.310E-03	0.1%
	1.034E-01	6.8%

4.3

ACSR -40 ~50

10kV~500kV 1-9~ 1-16

Structure	Center: Steel wire 1/2.68 Nos./mm Layer 1: Steel wire 6/2.68 Nos./mm Layer 2: Aluminum wire 10/3.44 Nos./mm Layer 3: Aluminum wire 16/3.44 Nos./mm	EN 50182
Stranding direction of outer layer	Right-hand	
Conductor diameter	21.8 mm	
Cross section	281.1 mm^2	
Conductor weight	977 kg/km	
Rated tensile strength	84.5 kN	
Modulus of Elasticity	74.0 GPa	
Coefficient of linear expansion	18.9 10^{-6}/	
Max. DC Resistance at 20	0.1195 Ω/km	
Lay ratio	id ( )TerD (c.5 10Tc -0.96 -0 339 1 T3.36C C .52T3 re)Tj ET EMC0.84	

Structure	Center: Steel wire 1/3.45 Nos./mm Layer 1: Steel wire 6/3.45 Nos./mm Layer 2: Aluminum wire 10/4.44 Nos./mm Layer 3: Aluminum wire 16/4.44 Nos./mm	
Stranding direction of outer layer	Right-hand	
Conductor diameter	28.11 mm	
Cross section	468 mm^2	

ASTM B232

Structure	Center: Steel wire 1/2.19 Nos./mm Layer 1: Steel wire 6/2.19 Nos./mm Layer 2: Steel wire 12/2.19 Nos./mm Layer 3: Aluminum wire 12/3.65 Nos./mm Layer 4: Aluminum wire 18/3.65 Nos./mm Layer 5: Aluminum wire 24/3.65 Nos./mm		EN 50182
Stranding direction of outer layer	Right-hand		
Conductor diameter	32.85 mm		
Cross section	636.6 mm^2		
Conductor weight	2123 kg/km		
Rated tensile strength	174.14 kN		
Modulus of Elasticity	70.2 GPa		
Coefficient of linear expansion	19.5 10^{-6}/		
Max. DC Resistance at 20	0.0512 Ω/km		
Lay ratio	Aluminum layer	24-wire layer 10-14 18-wire layer 10-16 12-wire layer 10-16	
	Steel layer	12-wire layer 14-22 6-wire layer 16-26	

Structure	Center: Steel wire 1/2.68 Nos./mm Layer 1: Steel wire 6/2.68 Nos./mm Layer 2: Aluminum wire 12/2.68 Nos./mm Layer 3: Aluminum wire 18/2.68 Nos./mm Layer 4: Aluminum wire 24/2.68 Nos./mm	EN 50182
Stranding direction of outer layer	Right-hand	
Conductor diameter	24.12 mm	
Cross section	344.10 mm^2	
Conductor weight	1151.2 kg/km	
Rated tensile strength	96.8 kN	
Modulus of Elasticity	70.5 GPa	
Coefficient of linear expansion	19.4 10^{-6}/	

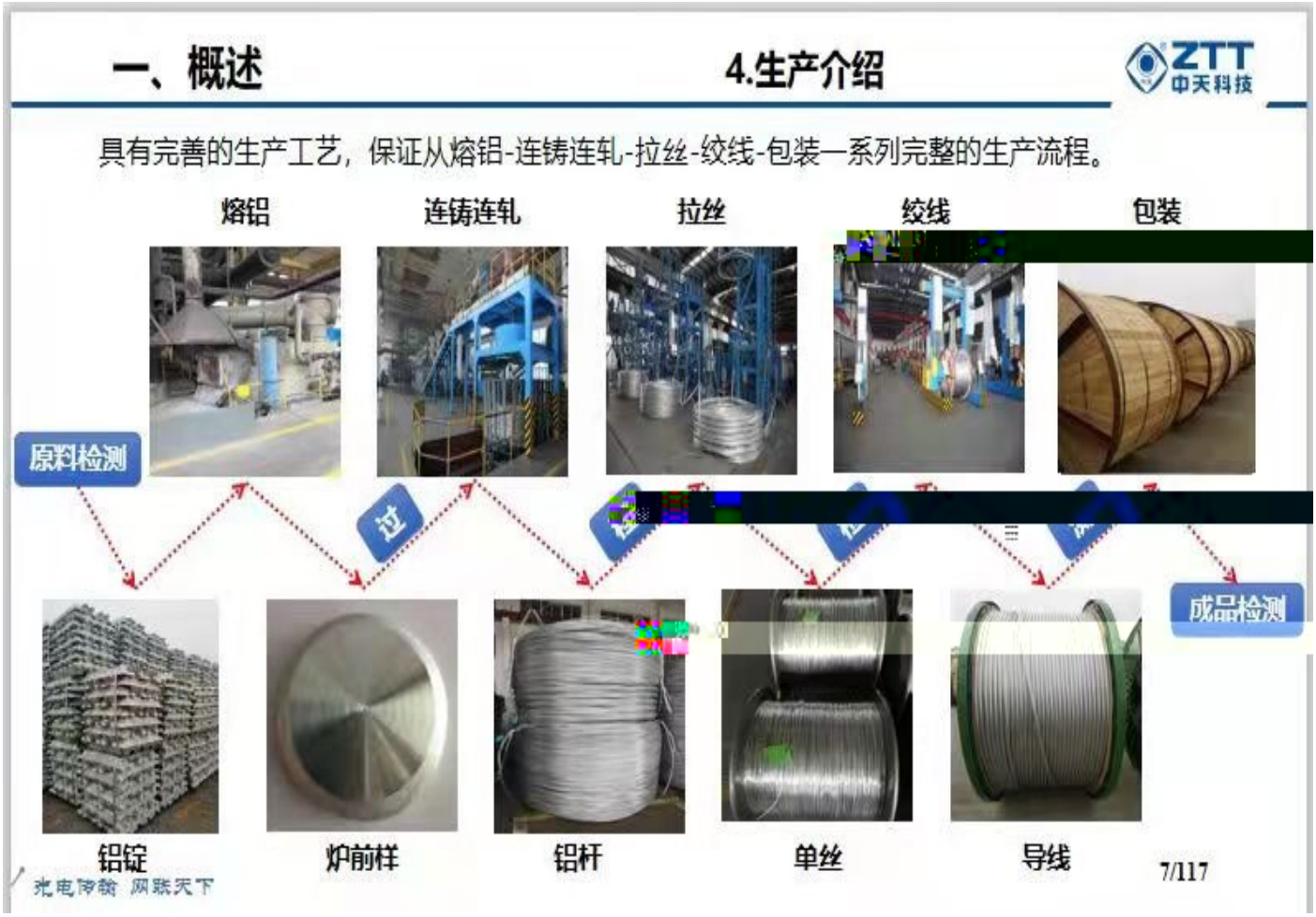
Max. DC Resistance at 20	0.0949 Ω/km		
Lay ratio	Aluminum layer	24-wire layer 10-14 18-wire layer 10-16 12-wire layer 10-16	
	Steel layer	6-wire layer 16-26	

Structure	Center: Steel wire 1/3.08 Nos./mm Layer 1: Steel wire 6/3.08 Nos./mm Layer 2: Aluminum wire 12/3.08 Nos./mm Layer 3: Aluminum wire 18/3.08 Nos./mm Layer 4: Aluminum wire 24/3.08 Nos./mm		EN 50182
Stranding direction of outer layer	Right-hand		
Conductor diameter	27.7 mm		
Cross section	454.5 mm^2		
Conductor weight	1520.5 kg/km		
Rated tensile strength	123.75 kN		
Modulus of Elasticity	72.4 GPa		
Coefficient of linear expansion	19.2 10^{-6}/		
Max. DC Resistance at 20	0.0719 Ω/km		
Lay ratio	Aluminum layer	24-wire layer 10-14 18-wire layer 10-16 12-wire layer 10-16	
	Steel layer	6-wire layer 16-26	

1.4.4

2

ACSR



2

1.5

1.5.1

PCR EN 15804 2012+ A1:2013; NPCR 027 – Part B for electrical cables and wires, version 1.0 LCA A1-A3, A4-A5 B2 B3, B6, C1-C4 ACSR

B1 B7

B B1,B4,B5,B7 LCA 1-16

1-16 ACSR LCA

	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
□ □		□		□		□	□ □	□	□ □	□	□ □	□		□		□	□

Modules

原料获取阶段 电解铝；钢芯；铝线；铁杆盘等；

[redacted]

3 ACSR

EPD ACSR 7 ZTT

8

1.5.4 5 ZTT

1 ZTT ZTT

—

ACSR LCA —

3

2

2.1

EN15804:2012 +A1:2013 ; NPCR 027 – Part B for electrical cables and wires, version 1.0 EN15804:2012 +A2:2019

2-1

Global warming potential- total	kg CO2 eq.	EN15804:2012 +A1:2013
Acidification potential AP	kg SO2 eq.	
Eutrophication potential EP	kg PO43- eq.	
Photochemical oxidant formation potential POCP	kg C2H4 eq.	
Abiotic depletion potential – Elements ADP	kg Sb eq.	
Abiotic depletion potential – Fossil fuels ADP	MJ, net calorific value	
Water Scarcity Footprint (WSF)	m3 H2O eq	
Depletion potential of the stratospheric ozone layer, ODP	kg CFC 11 equiv	

2.2

CLCD E-balance LCA ”

e-balance GHG protocol LCA

CLCD ELCD

Ecoinvent 10

4.7 2021/5/18.

e-balance ACSR LCA

2.3

2.3.1

LCA

EN15804

ACSR ACSR

2-2. ACSR good,

2-2 Data quality level assessment of ACSR

DATA	Geographical representativeness	Technical representativeness	Time representativeness	Quality level
CLCD	Average data from local larger area — good	Data from processes and products under study (with similar technology). -good	Less than 10 years of difference between the reference year-FAIR	

	data is similar to EU -fair	technology).-good	good	

2.3.2

1 ISO14040/44 2006 , PCR EN 15804 2012+ A1:2013; NPCR 027 – Part B for electrical cables and wires, version 1.0

2

CLCD CLCD

3

4 CLCD

10

5

2020.1.1-2021.12.31

2.4

ZTT ACSR ZTT

7

ISO14001 5

ZTT CLCD

CLCD 0.8 V4.7 (updated in 2013-2-9) LCA E-balance V4.7 (2021/5/18)

6

CLCD

1 CLCD ACSR 2-3.

2-3 ACSR

	A3 / A1	CLCD 0.8	2013-02-09
	A3	CLCD 0.8	2013-02-09
	A1	CLCD 0.8	2013-02-09
	A1	CLCD 0.8	2013-02-09
	A1	CLCD 0.8	2013-02-09
	A1 / A3	CLCD 0.8	2013-1-25
	B	Ecoinvent-Public 3.5	2018.8
	A1	CLCD 0.8	2013-02-09)
	A1 / A3	CLCD 0.8	2013-02-09)
	A1 / A3 / B / C	CLCD 0.8	2013-02-09
	A1 / A3	CLCD 0.8	2013-02-09
	A1 / A3	CLCD 0.8	2013-02-09
H	A1	CLCD 0.8	2013-01-25
	A1	Ecoinvent-Public 3.5	2018.8
	A1	Ecoinvent-Public 3.5	2018.8
	A2 / A4 / C2	CLCD 0.8	2013-02-09
	A4	CLCD 0.8	2013-02-09

2.5

ISO14044 EN15804

1 ACSR

ZTT

/

2

ZTT /

3 ZTT

ZTT

ACSR /

2-4 .

4 LCA A2, A4, A5, B, C

2-4

A1			ZTT /
			ZTT /
A1			ZTT /
ZTT			/
			/
			ACSR /
			ACSR /

2.6

NPCR EN 15804 1%

1%

ZTT

According to the GPI, the production of capital, buildings and equipment that are not included. GB50681-2011

23428 18742 2620

2-5 , ZTT + + 0.04%

0.31% 1% LCA

2-5 ZTT

	( )			50

	18742	2620	120000	6000000
	0.31%	0.04%	--	99.6%
		ZTT	ZTT	

2-6 2020 ZTT A3

	130845	kg	0.10%
	43820	kg	0.03%
	91354	kg	0.07%
	16715420	kg	12.50%
	114383491.2	kg	85.55%
	2342752.25	kg	1.75%
	133707682.5	kg	100.00%

2-6

0.1% 0.03% 0.07% 1% A3 LCA

cut-off

2-7

	T	%
30	15	0.007%
15	740	0.54%
	60	0.044%
15	135000	99.4%
	135815	100%

2-7 30 0.007%

0.044% 1% A2/A4/D2

2-8 List of excluded processes

excluded processes	Reason
ZTT plant building , facility and equipment	Total quality rate < 1%

B1, B4, B5, B7

3 LCI

3.1 A1

ACSR CLCD

2020.1.1 2020.12.31

5% 4.3% 2% ZTT 2.59%

3-1 5

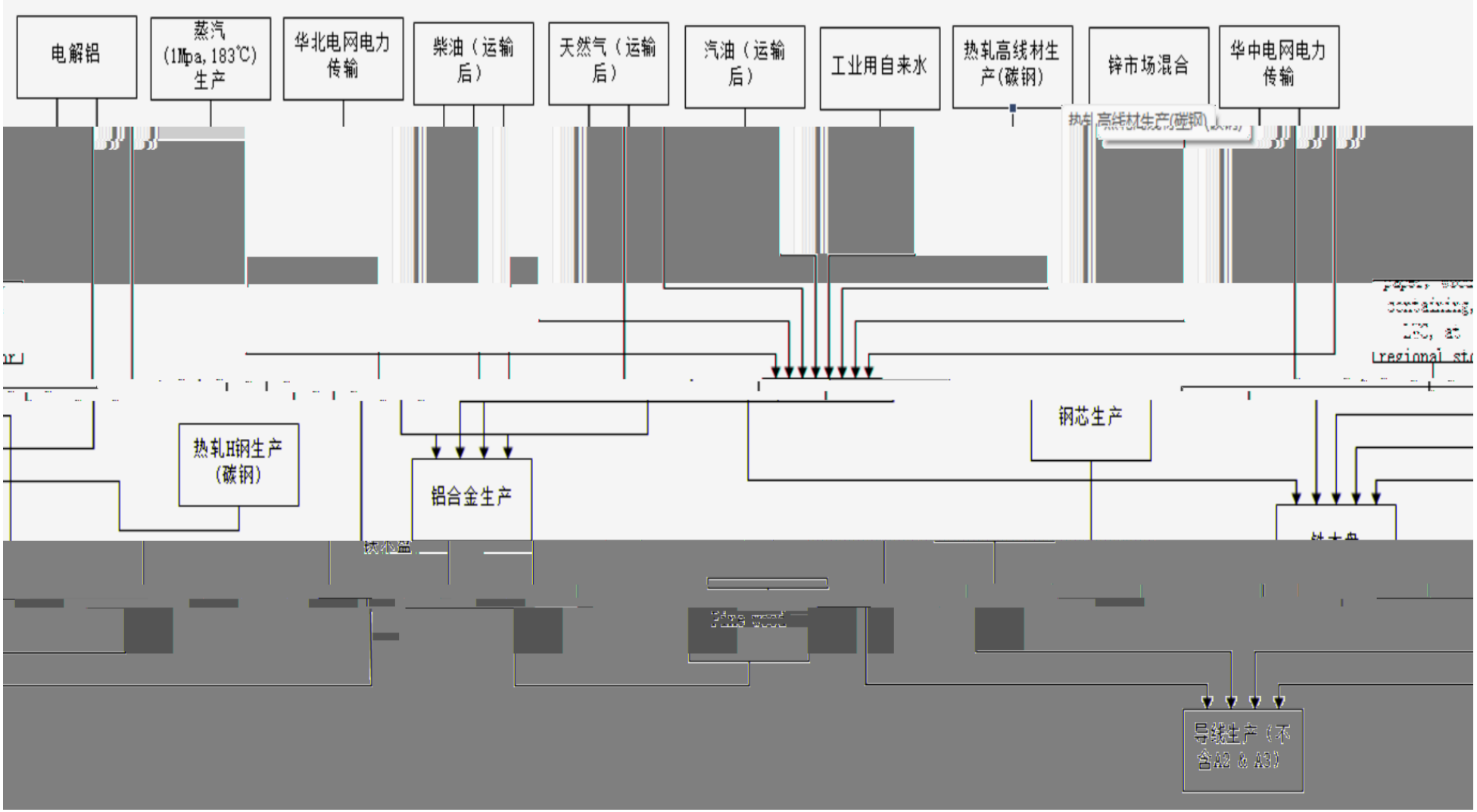
3-2

3-3

3-4 GHG

3-5 LCI

3-6


电解铝
蒸汽
(1Mpa,183℃)
生产
华北电网电力
传输
柴油（运输
后）
天然气（运输
后）
汽油（运输
后）
工业用自来水
热轧高线材生
产(碳钢)
锌市场混合
华中电网电力
传输
钢芯生产
热轧H钢生产
(碳钢)
铝合金生产
导线生产（不
含A2 & A3）

3-1　A1

3-1 5

		t/	KWH/	MJ/	M3/	KG/	kg/	M3/T	(/)	/
	0.47	112006	306.4872	0	14.492	0	0	2.170	1.05	0.05
	0.09	30555	266.7321	0	0	0.23492	0	2.00	1.047	0.059
	0.17	20000	500	0	0	0	0.00	0.3062	1.05	0.05
	0.17	125000	252.024	75.6233	0	0	0.0624	1.36	1.047	0.059
	0.09	80000	472.5688	0	57.875	0	0.2835	3.3615	1.025	0.059

	0.3062	0.1097	0.0032	0	0	0	5	12.00	0.00	0.002	0
	1.36	1.26E-03	8.80E-05	1.20E-04	0	0	0	14.86	0	0	0
	3.3615	0.0002575	2.60E-05	3.50E-06	0	0.1973	0	17	0	0	0.0365
	1.786	0.028	8.57E-04	2.07E-05	0.000122	0.02586	4.24255	39.5	0.00272		0.0033

3-2

		t/	KWH/	M3/	kg/	/
	100%	79058.8	585.6654	36.32161	0.280	1.05
	M3/	KG/	kg/T	SO2 kg/T	NOX kg/T	kg/T
	0	0	4.86E-02	0.0282	0.0602	0.01

IPCC 2006 .

3-5 LCI

INPUT	/T	/T	ACSR 26-3.44+7-2.68/m	ACSR 26-3.72+7-2.89/m	ACSR 26-4.44+7-3.45/m	ACSR 45-3.38+7-2.25/m	ACSR 54-3.65+19-2.19/m	ACSR 54-7-2.68/m	ACSR 54-7-3.08/m
kg/m									
kg /m									
kg /m									
(KWH)									
(M3)									
(MJ)									
(KG)									
(KG)									
(M3)									
(KG)									

KG									
(KG)									
(M3)									
Zn (KG)									
COD (kg)									
(kg)									
(kg)									
NOX (KG)									
VOC (KG)									
(KG)									
SO2 (KG)									
(KG)									
(KG)									
CO2 (kg)									
CH4 (kg)									
NO2(KG)									

2.15% 97.85% 5% 4.3% ACSR

2.59%

■

ZTT 3-6

3-6

		ACSR 26-3.44+7-2.68	ACSR 26-3.72+7-2.89	ACSR 26-4.44+7-3.45	

KG/m								
KG/m								
KG/M								

2%

3.2 A2 /A4

ACSR

LCA CLCD LCA

40% 40%

CLCD LCA TKM LCA

40%

3-7 A2 /A4

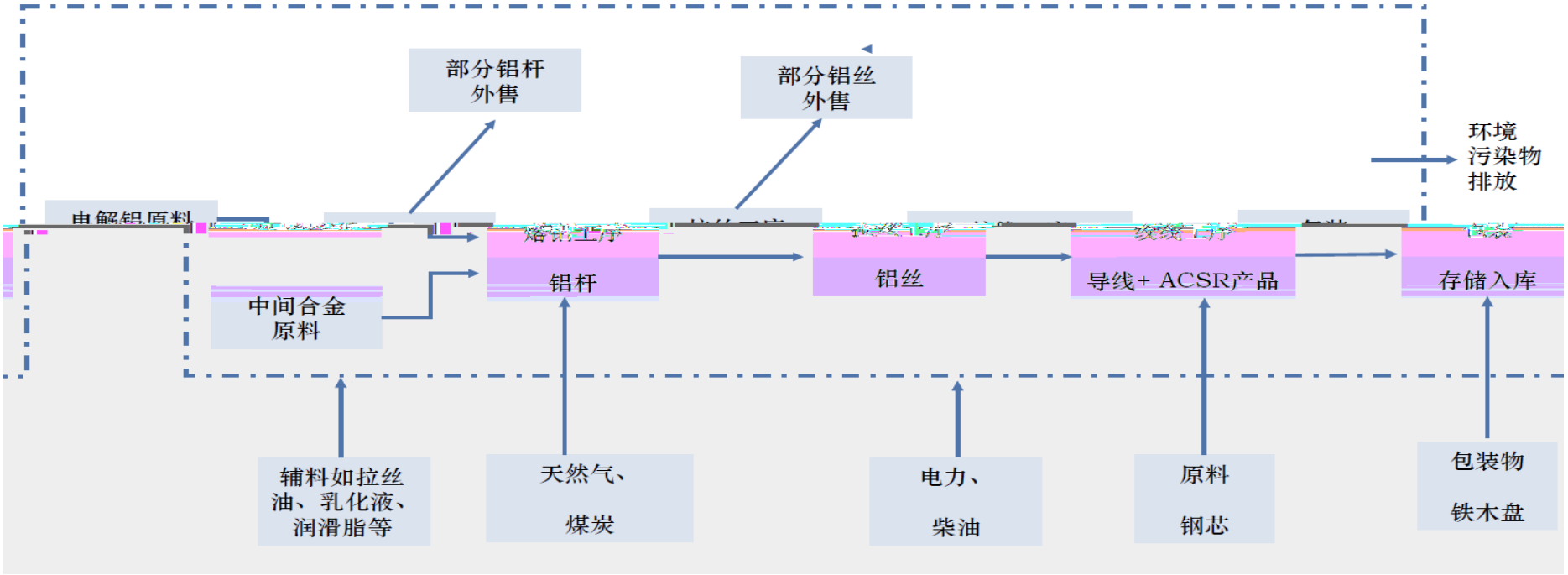
	KM			
	500		30 IV	40%
	1140		30 IV	5 41%
	1.0		30 IV	50%
	1250		30 IV	40%
	20000			0%
	300 ( )		30 IV	50%

Product components	ACSR 26-3.44+7-2.68	ACSR 26-3.72+7-2.89	ACSR 26-4.44+7-3.45	ACSR 45-3.38+7-2.25	ACSR 54-3.65+19-2.19	ACSR 54-7-2.68	ACSR 54-7-3.08
Steel core KG /m	6.68E-01	7.80E-01	1.11E+00	1.11E+00	1.56E+00	8.43E-01	1.11E+00
Aluminum alloy kg/m	3.09E-01	3.60E-01	5.14E-01	2.19E-01	5.60E-01	3.09E-01	4.07E-01
kg/m	8.25E-02	8.21E-02	1.49E-01	1.42E-01	1.45E-01	1.99E-01	1.03E-01

TKM/m	6.89E-01	8.04E-01	1.15E+00	9.95E-01	1.53E+00	8.27E-01	1.09E+00

3.3 A3 ACSR

3.3.1 ACSR



A3

3.3.2 ACSR

ACSR ZTT 2020 2020.1 -2020.12 ZTT

ZTT

ACSR ZTT

3-9

3-9 2020

						KWH	KWH/T	M3/T	M3/T	KG/T
		114383.49		80543.70						
		2342.75		35505.20	0.58%	7544000.94	65.01	40.87	47.75	
		80543.70		86330.78						
		7377.22		1490.14	0.11%	7705604.12	87.74			
		86330.78								
		16715.42		101090.06	1.90%	1098885.57	10.85			0.50
				16346490.63	2.59%	16346490.63	163.60	40.87	47.75	0.50

3-10 A3

A3		ACSR 26-3.44+7-2.68	ACSR 26-3.72+7-2.89	ACSR 26-4.44+7-3.45	ACSR 45-3.38+7-2.25	ACSR 54-3.65+19-2.19	ACSR 54-7-2.68	ACSR 54-7-3.08
KG		6.71E-01	7.83E-01	1.12E+00	1.12E+00	1.57E+00	8.46E-01	1.12E+00
KG		1.47E-02	1.72E-02	2.46E-02	2.46E-02	3.45E-02	1.86E-02	2.45E-02
KG		3.17E-01	3.69E-01	5.27E-01	2.24E-01	5.75E-01	3.17E-01	4.18E-01
KWH/T	1.64E+02	1.60E-01	1.82E-04	2.97E-07	3.95E-10	8.40E-13	9.67E-16	1.47E-18
KG/T	5.00E-01	4.89E-04	5.57E-07	9.07E-10	1.21E-12	2.57E-15	2.95E-18	4.49E-21
M3/T	4.09E+01	3.99E-02	4.55E-05	7.41E-08	9.88E-11	2.10E-13	2.41E-16	3.67E-19
KG/T	4.78E+01	4.67E-02	5.32E-05	8.66E-08	1.15E-10	2.45E-13	2.82E-16	4.29E-19
kg/T	9.15E-01	8.94E-04	1.02E-06	1.66E-09	2.21E-12	4.69E-15	5.40E-18	8.22E-21
SO2 kg/T	1.19E-02	1.16E-05	1.32E-08	2.16E-11	2.87E-14	6.10E-17	7.02E-20	1.07E-22
NOX kg/T	1.01E-01	9.83E-05	1.12E-07	1.82E-10	2.43E-13	5.16E-16	5.94E-19	9.04E-22
(KG/T)	1.28E+01	1.25E-02	1.43E-05	2.33E-08	3.11E-11	6.59E-14	7.59E-17	1.15E-19
KG/t	1.30E+01	1.27E-02	1.45E-05	2.35E-08	3.14E-11	6.66E-14	7.67E-17	1.17E-19
CO2 (kg/T)	1.84E+02	1.80E-01	2.05E-04	3.34E-07	4.45E-10	9.45E-13	1.09E-15	1.65E-18
CH4 (kg/T)	2.54E-03	2.48E-06	2.83E-09	4.61E-12	6.15E-15	1.30E-17	1.50E-20	2.28E-23

NO2 (kg/T)	2.25E-03	2.20E-06	2.51E-09	4.09E-12	5.45E-15	1.16E-17	1.33E-20	2.02E-23

3.4 A5

GBJ 233-1990

3-11 LCA

3-12.

3-11

NO.		
1		0.5%
2		Not use water
3		Not use other resource
4		0.1L/m
5		0.8%

6		Metal Recycling Factsheet in EU ” 50% 40% 90% 90% 50% 50% NPCR 100KM 18

7

ACSR 54-3.65+19-2.19								
ACSR 54-7-2.68								
ACSR 54-7-3.08								

3.5 B2/B3/B4/B6

3.5.1 B2/B3/B4/B6

ACSR [illegible]

1		DL/T 741 2001 DL 409 1991 ( )
2		2
3		
4	iu	0 KG
5		0 M3
6		50% 50% ( ) 40 0.96TKM/cycle/m 0.01L /cycle/m
B3 REPAIR PROCESS		
1		DL/T 741 2001 DL 409 1991 ( )
2		DL/T 741 2001 DL 409 1991 ( )
3		
4		0.00126kg/cycle.

B6 USE OF ENERGY		
1		0 KG

2

ZTT

B	(TKM / cycle / m)	(KG / cycle / m)	(kg / cycle / m)	kWh / cycle / m
B2	2.4 TKM/m	0.0185 kg Petroleum oil /m		
B3			0.00315 kg/ m	
B6				

ACSR	Kw / km	(kwh / m / cycle)
ACSR 26-3.44+7-2.68	7.66E+00	6.70E+03
ACSR 26-3.72+7-2.89	9.02E+00	7.90E+03
ACSR 26-4.44+7-3.45	1.30E+01	4.56E+03
ACSR 45-3.38+7-2.25)	1.33E+01	1.14E+04
ACSR 54-3.65+19-2.19	1.91E+01	1.67E+04
ACSR 54-7-2.68	9.91E+00	8.68E+03
ACSR 54-7-3.08	1.32E+01	1.16E+04

3.6 C1-C4

C1 0.014 KG /m C2 100KM , 18 100%

C3 Metal Recycling Factsheet in EU ”, 90% of aluminium recovered from construction and transport in 2018, Over 90% of steel waste is currently collected and recycled into new products 90%

C4 10%

3-14 C

	0.977KG/M-1.626.5 KG/M , will be collected separately
	0.977KG/M-1.626.5 KG/M 90% will recycling in other product
	Iron and aluminum wastes are sorted and treated simply physically
	PCR EN 15804 2012+ A1:2013; NPCR 027 – Part B for electrical cables and wires, version 1.0, 100KM,
C3	

C4	10%

3-15 C1-C4 LCI

	(KG /M)	C2 (TKM/m)	C1 KG/M	C3 KWH/m	C3 KG/m	C3 m3/m	C4 KG/M
ACSR 26-3.44+7-2.68	9.77E-01	9.77E-02	1.40E-02	2.93E-03			9.77E-02
ACSR 26-3.72+7-2.89	1.14E+00	1.14E-01	1.40E-02	3.42E-03			1.14E-01
ACSR 26-4.44+7-3.45	1.63E+00	1.63E-01	1.40E-02	4.88E-03			1.63E-01
ACSR 45-3.38+7-2.25	1.33E+00	1.33E-01	1.40E-02	4.00E-03			1.33E-01
ACSR 54-3.65+19-2.19	2.12E+00	2.12E-01	1.40E-02	6.37E-03			2.12E-01
ACSR 54-7-2.68	1.15E+00	1.15E-01	1.40E-02	3.45E-03			1.15E-01
ACSR 54-7-3.08	1.52E+00	1.52E-01	1.40E-02	4.56E-03			1.52E-01

3KWH/

6.5T/T 0.0153KG/

4

4.1 A1 LCA

EN 15804 CLCD ACSR

4-1

40 100

HW = RW = ;

4-1 100 A1

	5.63E+01	3.10E-04	5.83E-04	1.17E+03	1.97E-02	5.23E+01	5.23E+01	2.68E-01		4.53E-07	7.63E+00
	7.38E+01	4.05E-04	7.60E-04	1.53E+03	2.55E-02	6.83E+01	6.83E+01	3.50E-01		5.88E-07	9.83E+00

	GWP (kg CO2eq)	GWP - (kg CO2eq)	ADP (kg antimony eq.)	ADP(fossil fuel) (MJ)	EP (kg PO43-eq)	MEP - marine eutrophication (kg N-Eq)	FEP - freshwater eutrophication (kg P-Eq)	AP (kg SO2 eq)	POFP (kg NMVOC eq)	ODP (kg CFC-11 eq)	WDP (m3 H2O eq)
[redacted]											

5.0.76

30t							
ACSR 26-3.44+7-2.68							
ACSR 26-3.72+7-2.89							
ACSR 26-4.44+7-3.45							
ACSR 45-3.38+7-2.25							
ACSR 54-3.65+19-2.19							
ACSR 54-7-2.68							
ACSR 54-7-3.08							

4.3 A3 LCA

4-5 100 A3

4-8 A4 ACSR

	PED (MJ)						

4.5 A5 LCA

4-9 100 A5 ACSR LCA

	GWP (kg CO2eq)	GWP (kg CO2eq)	ADP (kg antimony eq.)	ADP(fossil fuel) (MJ)	EP (kg PO43- eq)	MEP - marine eutrophication (kg N-Eq)	FEP - freshwater eutrophication (kg P-Eq)	AP (kg SO2 eq)	POFP (kg NMVOC eq)	ODP (kg CFC-11 eq)	WDP (m3 H2O eq)
ACSR 26-3.44+7-2.68											
ACSR 26-3.72+7-2.89											
ACSR 26-4.44+7-3.45											
ACSR 45-3.38+7-2.25											
ACSR 54-3.65+19-2.19											
ACSR 54-7-2.68											
ACSR 54-7-3.08											

4-10 100 A5

4.6 B2/B3/B4/B6 LCA

4-11 100 B2/B3/B4/ B6 LCA

	GWP (kg CO2eq)	GWP (kg CO2eq)	ADP (kg antimony eq.)	ADP(fossil fuel) (MJ)	EP (kg PO43-eq)	MEP - marine eutrophication (kg N-Eq)	FEP - freshwater eutrophication (kg P-Eq)	AP (kg SO2 eq)	POFP (kg NMVOC eq)	ODP (kg CFC-11 eq)	WDP (m3 H2O eq)
ACSR 26-3.44+7-2.68	3.30E+03	3.83E+00	8.10E-03	1.46E+05	9.43E+00	3.55E+03	3.55E+03	1.39E+01		1.12E+00	3.30E+03
ACSR 26-3.72+7-2.89	3.88E+03	4.50E+00	9.55E-03	1.72E+05	1.11E+01	4.18E+03	4.18E+03	1.64E+01		1.32E+00	3.88E+03
ACSR 26-4.44+7-3.45	5.60E+03	6.50E+00	1.38E-02	2.48E+05	1.60E+01	6.03E+03	6.03E+03	2.37E+01		1.90E+00	5.60E+03

ACSR 45-3.38+7-2.25	5.73E+03	6.68E+00	1.41E-02	2.55E+05	1.64E+01	6.18E+03	6.18E+03	2.43E+01		1.95E+00	5.73E+03
ACSR 54-3.65+19-2.19	8.20E+03	9.53E+00	2.02E-02	3.63E+05	2.35E+01	8.83E+03	8.83E+03	3.48E+01		2.78E+00	8.20E+03
ACSR 54-7-2.68	4.28E+03	4.95E+00	1.05E-02	1.89E+05	1.22E+01	4.60E+03	4.60E+03	1.81E+01		1.45E+00	4.28E+03
ACSR 54-7-3.08											

4-12 100 B2/B3/B4/B6

ACSR 26-3.44+7-2.68	8.30E+04	5.98E+03	7.70E+04	1.27E-02	1.87E-06	3.38E+00	2.60E+01
ACSR 26-3.72+7-2.89	9.78E+04	7.05E+03	9.08E+04	1.27E-02	1.87E-06	3.98E+00	3.08E+01
ACSR 26-4.44+7-3.45	1.41E+05	1.02E+04	1.31E+05	1.27E-02	1.87E-06	5.75E+00	4.43E+01
ACSR 45-3.38+7-2.25	1.45E+05	1.04E+04	1.34E+05	1.27E-02	1.87E-06	5.88E+00	4.53E+01
ACSR 54-3.65+19-2.19	2.07E+05	1.49E+04	1.92E+05	1.27E-02	1.87E-06	8.43E+00	6.50E+01
ACSR 54-7-2.68	1.08E+05	7.73E+03	9.98E+04	1.27E-02	1.87E-06	4.38E+00	3.38E+01

ACSR 54-7-3.08											

4.7 C1-C4 LCA

4-13 100 C1-C4 LCA

	1.50E-01	4.38E-06	1.23E-07	4.05E+00	2.17E-04	1.47E-01	1.47E-01	6.34E-04	7.91E-06	2.81E-09	2.95E-03
	4.69E-01	7.15E-06	1.21E-06	4.23E+01	1.39E-03	4.43E-01	4.43E-01	7.09E-03	8.07E-05	3.02E-08	2.03E-02
	6.23E-01	1.02E-05	1.73E-06	6.05E+01	1.99E-03	5.85E-01	5.85E-01	1.01E-02	1.15E-04	4.32E-08	2.90E-02
	5.29E-01	8.36E-06	1.41E-06	4.94E+01	1.62E-03	4.98E-01	4.98E-01	8.27E-03	9.41E-05	3.53E-08	2.37E-02
	7.76E-01	1.33E-05	2.25E-06	7.87E+01	2.59E-03	7.27E-01	7.27E-01	1.32E-02	1.50E-04	5.62E-08	3.77E-02
	4.72E-01	7.21E-06	1.22E-06	4.27E+01	1.41E-03	4.46E-01	4.46E-01	7.15E-03	8.14E-05	3.05E-08	2.05E-02

	5.88E-01	9.53E-06	1.61E-06	5.64E+01	1.86E-03	5.53E-01	5.53E-01	9.45E-03	1.08E-04	4.03E-08	2.70E-02

4-14 100 C1-C4

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	GWP (kg CO2eq)	GWP (kg CO2eq)	ADP (kg antimony eq.)	ADP(fossil fuel) (MJ)	EP (kg PO43-eq)	MEP - marine eutrophication (kg N-Eq)	FEP - freshwater eutrophication (kg P-Eq)	AP kg SO2 eq.)	POFP (kg C2H4 eq)	ODP (kg CFC-11 eq)	WDP (m3 H2O eq)
ACSR 26-3.44+7-2.68	-3.43E+01	-1.82E-04	-3.78E-04	-7.20E+02	-1.22E-02	-3.18E+01	-3.18E+01	-1.68E-01		-2.90E-07	-4.38E+00
ACSR 26-3.72+7-2.89	-4.00E+01	-2.12E-04	-4.43E-04	-8.42E+02	-1.42E-02	-3.70E+01	-3.70E+01	-1.96E-01		-3.40E-07	-5.13E+00
ACSR 26-4.44+7-3.45	-5.70E+01	-3.03E-04	-6.33E-04	-1.20E+03	-2.03E-02	-5.28E+01	-5.28E+01	-2.80E-01		-4.85E-07	-7.33E+00
ACSR 45-3.38+7-2.25	-5.70E+01	-3.03E-04	-6.33E-04	-1.20E+03	-2.03E-02	-5.28E+01	-5.28E+01	-2.80E-01		-4.85E-07	-7.33E+00
ACSR 54-3.65+19-2.19	-8.00E+01	-4.25E-04	-8.83E-04	-1.68E+03	-2.85E-02	-7.40E+01	-7.40E+01	-3.93E-01		-6.80E-07	-1.03E+01
ACSR 54-7-2.68	-4.30E+01	-2.28E-04	-4.78E-04	-9.08E+02	-1.53E-02	-4.00E+01	-4.00E+01	-2.12E-01		-3.68E-07	-5.53E+00
ACSR 54-7-3.08	-5.70E+01	-3.03E-04	-6.30E-04	-1.20E+03	-2.03E-02	-5.28E+01	-5.28E+01	-2.80E-01		-4.85E-07	-7.30E+00

Product Type	Total energy (MJ)	Renewable energy (MJ) (MJ)	Non-renewable energy (MJ)	Total Waste Solids (kg)	HW (kg) (kg)	RW (kg)	Water Use (m3)

ACSR 26-3.44+7-2.68							
ACSR 26-3.72+7-2.89							
ACSR 26-4.44+7-3.45							
ACSR 45-3.38+7-2.25							
ACSR 54-3.65+19-2.19							
ACSR 54-7-2.68							
ACSR 54-7-3.08							

5

5.1

ACSR 26-3.44+7-2.68 LCA

5-1 ACSR 26-3.44+7-2.68

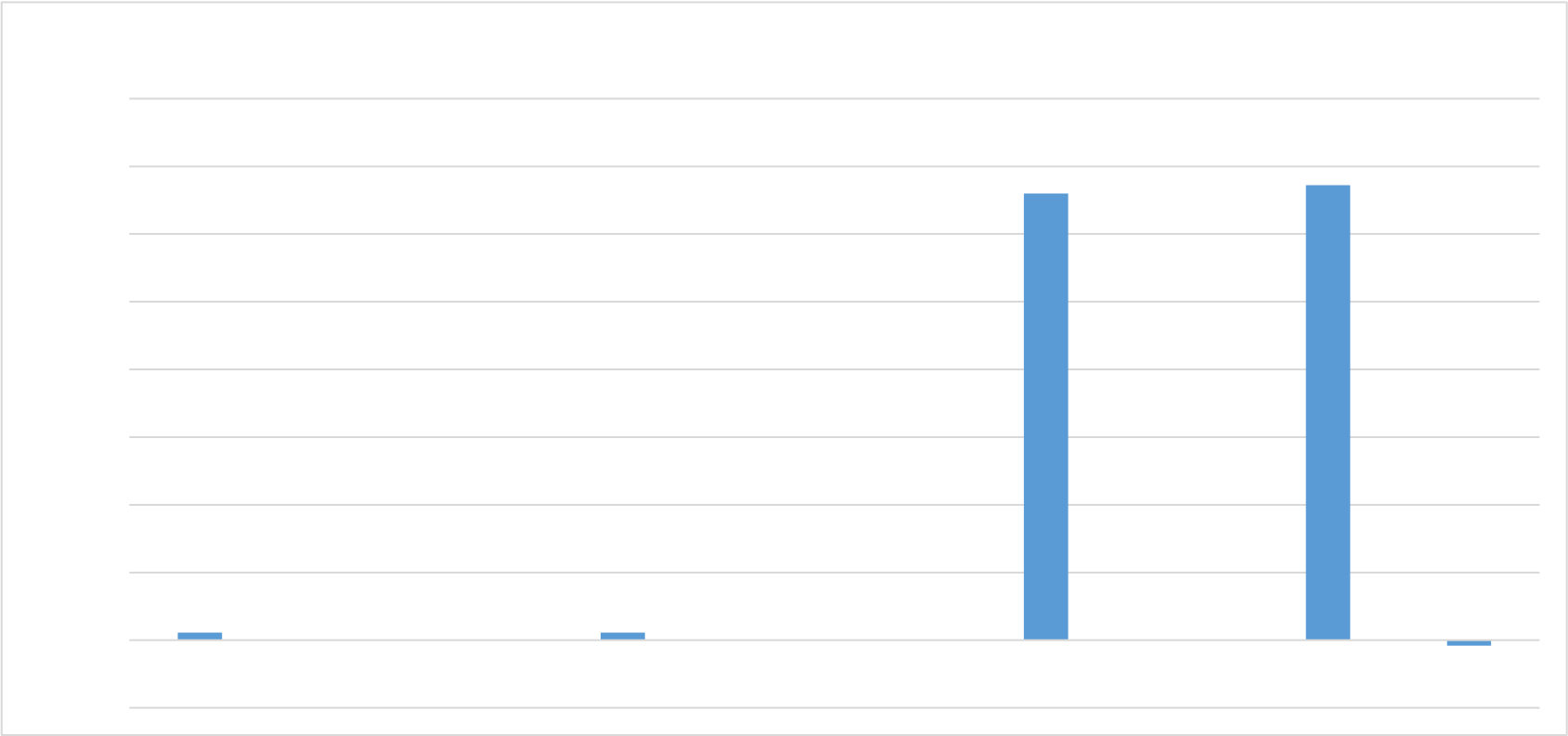


Figure 5-1 GWP

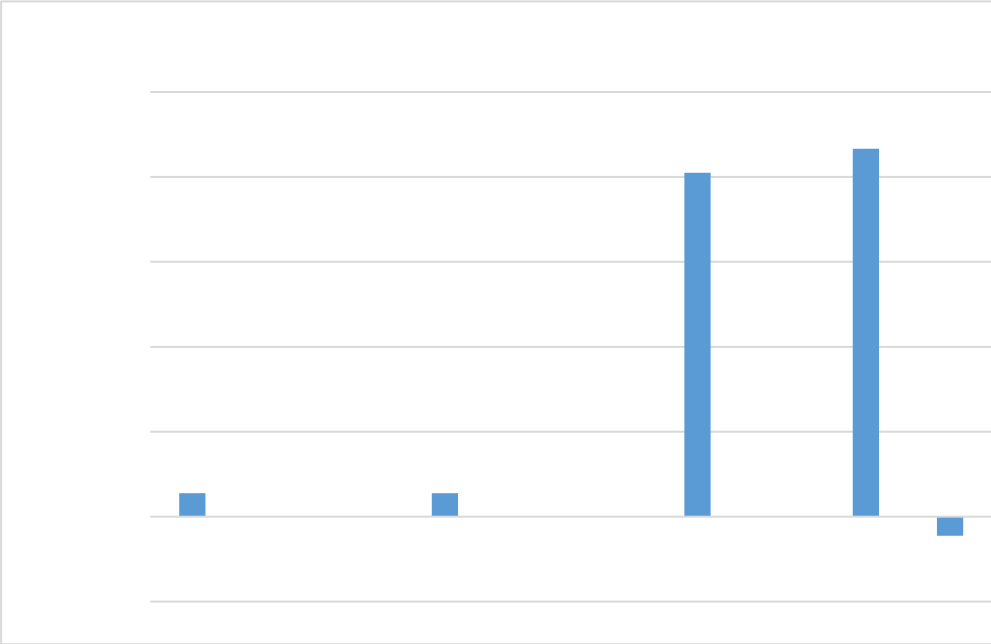


Figure 5-2 ADP (Resource)

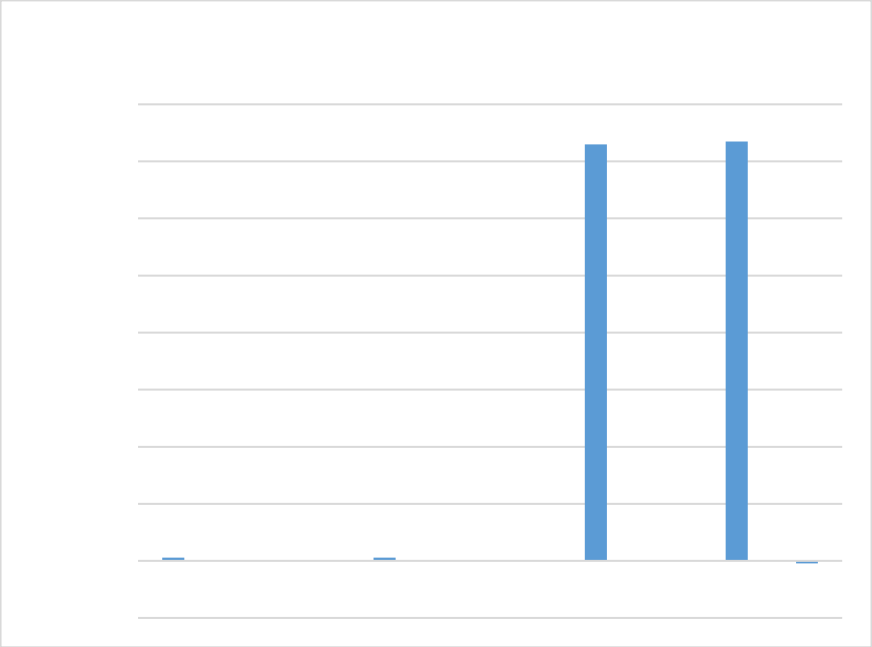
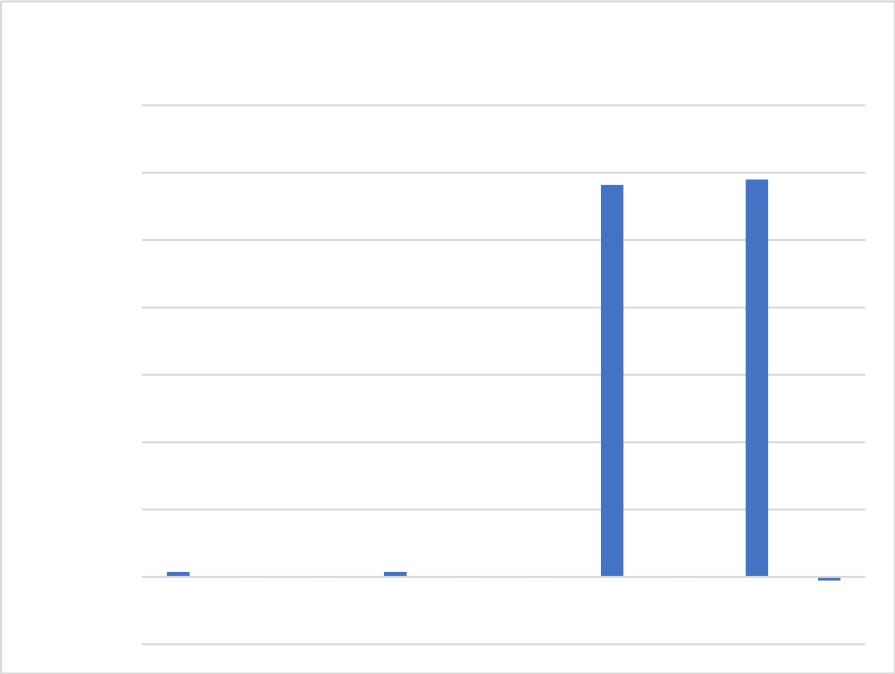


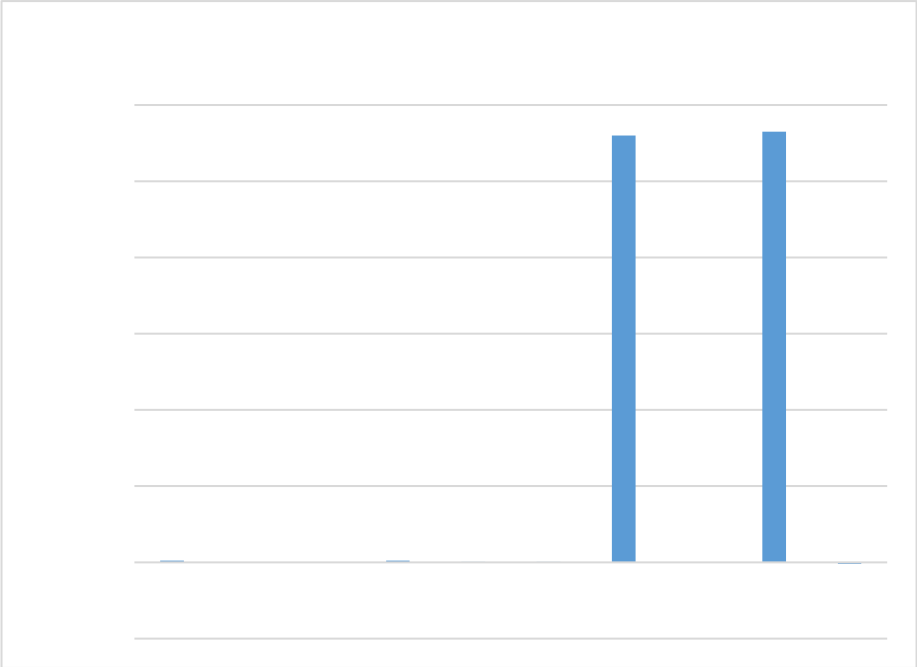
Figure 5-3 ADP (Fossil)

Figure 5-4 EP Environmental Impact

Figure 5-5 AP Environmental Impact

5-4 5-5 EP AP B EP 9.46 kg PO43-eq E A





A1 Raw material production A3 Product production A4 Product transportation A5 Product construction B2/B3/B6 Use and maintenance C1-C4 Product scrap and disposal D waste reuse	A1 Raw material production A3 Product production A4 Product transportation A5 Product construction B2/B3/B6 Use and maintenance C1-C4 Product scrap and disposal D waste reuse

Figure 5-6 POCP

Figure 5-7 ODP

5-6 5-7 POCP ODP B POCP 0.59 kg C2H4 eq ODP 1.13 E-04 kg CFC-11 eq B POCP ODP 0.582 kg NMVOC eq 1.13 E- 04 kg CFC-11 99% 100

5.2 LCA

ACSR

5.3

ACSR 26-3.44+7-2.68 1%

5-2 A1 — B

5-2 ACSR 26-3.44+7-2.68 A1 & B

1. ISO 14040:2006 Environmental management – Life cycle assessment - Principles and Framework

2. ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and provides guidelines for life cycle assessment (LCA)

3. General Programme Instructions for Environmental Product Declarations, version 4.0

4. PCR 2019:14 Construction products; version 1.0 valid until 2024.12.20

5. NPCR 027 – Part B for electrical cables and wires, version 1.0 valid to 10.02.2025

6 EN 15804:2012+A1:2013 Sustainability of construction works – Environmental product declarations – Core rules for the product caregory of construction products

7. EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations – Core rules for the product caregory of construction products

8. ISO21930 :2017 Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services