Jiangsu Zhongtian Technology Co.,Ltd.

ACSR

2021 12 30

1 LCA 4
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1.3 5
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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%

CLCD 10

ACSR 8

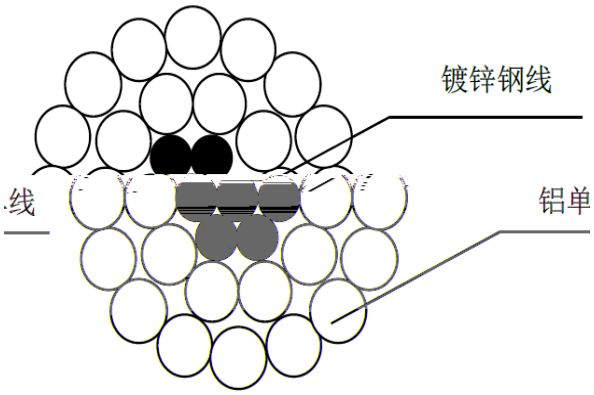
CLCD

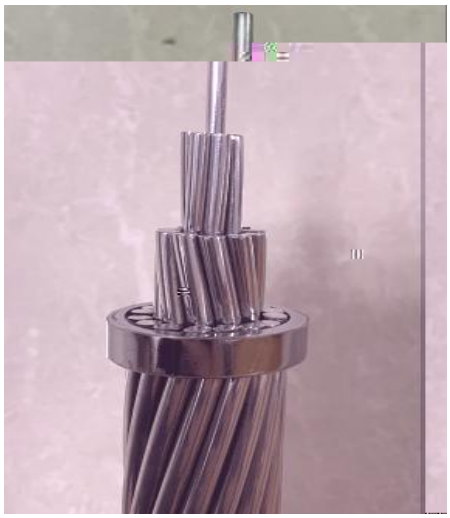
1.4

1.4.1

ACSR

1-1





1-1 ACSR

1.4.2 BOM

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

1 ACSR 26-3.44+7-2.68 BOM

	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%

1 ACSR 26-3.72+7-2.89 BOM

	kg/m	-%
/ &	7.799E-01	68.4%
/	3.598E-01	31.6%
	1.139E+00	100.0%
	kg /m	-% ( )
	0.0425	3.7%
	3.893E-02	

	1.370E-03
	1.490E-01

1 ACSR 45-3.38+7-2.25

	kg/m
/ &	1.115E+00
/	2.187E-6 <</MCID473 BDC 0 Tc 0 Tw 10.56 -0 0 89.56 392.04 697.08 Tm( )T

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

1.4.3

ACSR -40 ~50

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

Property	Value	Standard
	×	

	×	

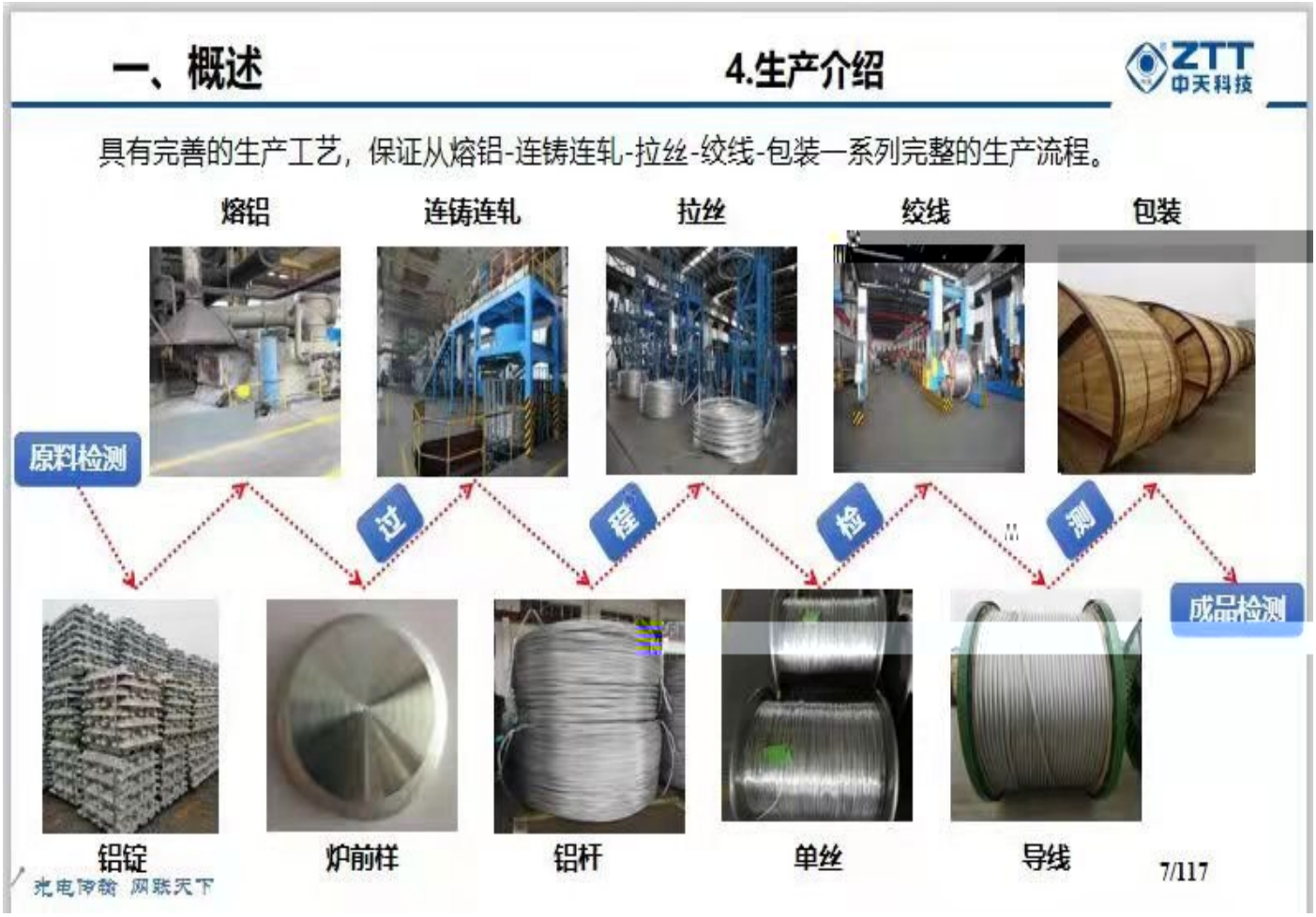
	×	

	×		

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

Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**

原料获取阶段 电解铝；钢芯； 铁木盘等；

[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 (c-9 years of difference between the reference year-FAIR	253.06 t 10 Tc 0 c)-6.0 Tc6n

1268.16 Tuadctw

	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		
	A3		
	A1		
	A1		
	A1		
	A1/A3		
	B		
	A1		
	A1/A3		
	A1/A3/B/C		
	A1/A3		
	A1/A3		
H	A1		
	A1		
	A1		
	A2/A4/C2		
	A4		

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

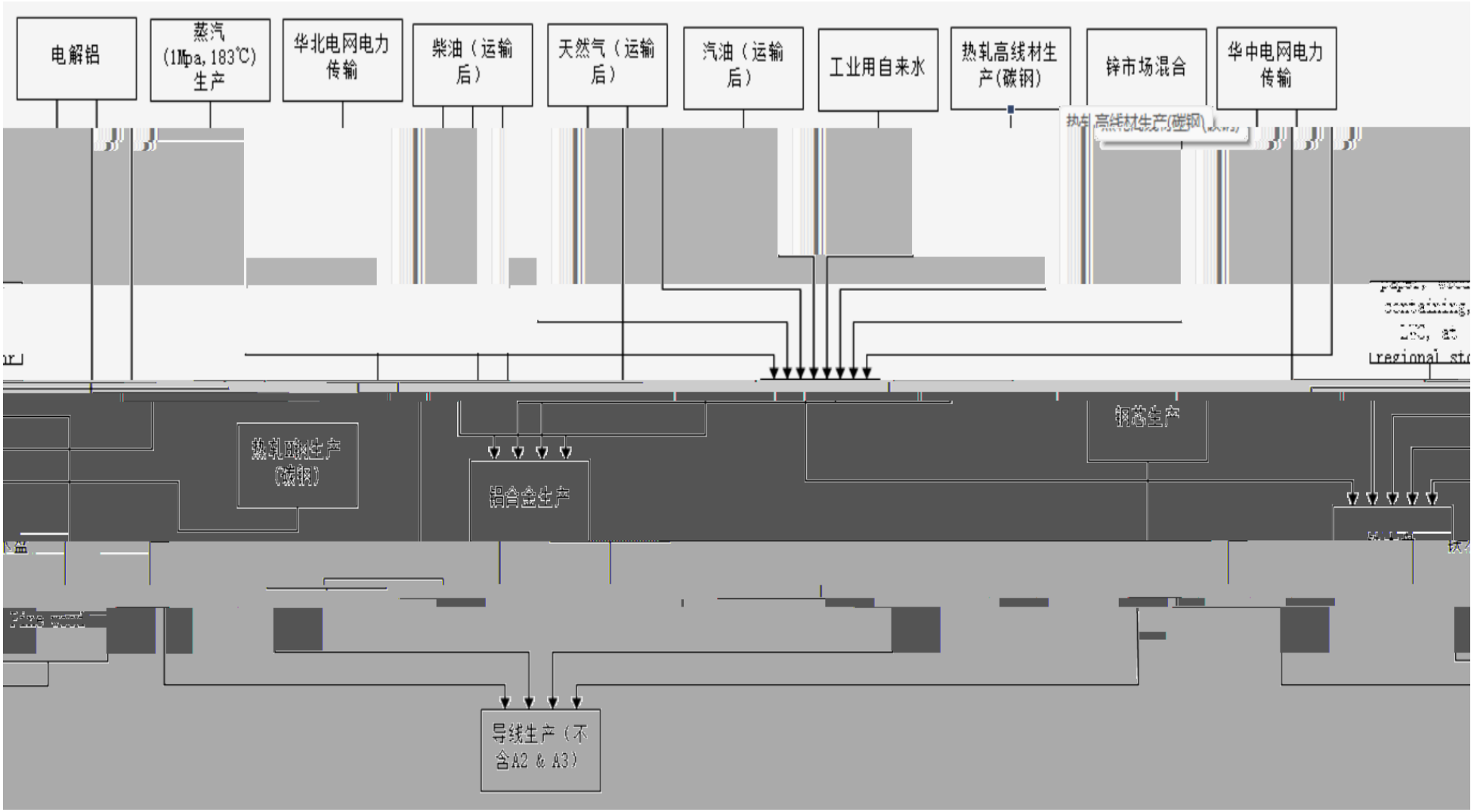
3-2

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
热轧棒材生产
(碳钢)
铝合金生产
钢芯生产
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

ن ĕ i ï ɜ ”Ω ĕ كد شم ḗ ن

	0.3062	0.1097	0.0032	0	0	0	5	12.00	0.00	0.002	0
[redacted]		1.26E-03	8.80E-05	1.20E-04	0	0	0	14.86	0	0	0
		0.000257 5	2.60E-05	3.50E-06	0	0.1973	0	17	0	0	0.036 5
		0.028	8.57E-04	2.07E-05	0.000122	0.02586	4.24255	39.5	0.0027 2	0.0003	0.003 3

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			6.71E-01	7.83E-01	1.12E+00	1.12E+00	1.57E+00	8.46E-01	1.12E+00
kg /m			1.47E-02	1.72E-02	2.46E-02	2.46E-02	3.45E-02	1.86E-02	2.45E-02
kg /m			3.17E-01	3.69E-01	5.27E-01	2.24E-01	5.75E-01	3.16E-01	4.18E-01
(KWH)	3.38E+02	5.86E+02	1.18E-01	1.37E-01	1.96E-01	9.19E-02	2.19E-01	1.20E-01	1.59E-01
(M3)	1.20E+01	3.63E+01	4.42E-03	5.15E-03	7.36E-03	3.66E-03	8.31E-03	4.56E-03	6.02E-03
(MJ)	1.29E+01	0.00E+00	4.14E-03	4.82E-03	6.89E-03	2.93E-03	7.52E-03	4.14E-03	5.46E-03
(KG)	2.11E-02	0.00E+00	6.79E-06	7.92E-06	1.13E-05	4.81E-06	1.23E-05	6.79E-06	8.97E-06
(KG)	3.61E-02	2.80E-01	1.59E-05	1.85E-05	2.64E-05	1.53E-05	3.10E-05	1.69E-05	2.24E-05
(M3)	1.79E+00	0.00E+00	5.75E-04	6.70E-04	9.57E-04	4.07E-04	1.04E-03	5.75E-04	7.59E-04
(KG)	1.04E+03	0.00E+00	3.36E-01	3.91E-01	5.59E-01	2.38E-01	6.10E-01	3.36E-01	4.43E-01

KG	0.00E+00	1.05E+03	1.58E-02	1.85E-02	2.64E-02	2.64E-02	3.70E-02	2.00E-02	2.64E-02
(KG)	2.92E-02	0.00E+00	9.39E-06	1.09E-05	1.56E-05	6.65E-06	1.70E-05	9.38E-06	1.24E-05
(M3)	1.79E+00	0.00E+00	5.75E-04	6.70E-04	9.57E-04	4.07E-04	1.04E-03	5.75E-04	7.59E-04
Zn (KG)	1.22E-04	0.00E+00	3.93E-08	4.59E-08	6.55E-08	2.79E-08	7.14E-08	3.93E-08	5.19E-08
COD (kg)	2.90E-02	0.00E+00	9.34E-06	1.09E-05	1.55E-05	6.62E-06	1.70E-05	9.33E-06	1.23E-05
(kg)	8.57E-04	0.00E+00	2.76E-07	3.22E-07	4.59E-07	1.95E-07	5.01E-07	2.76E-07	3.64E-07
(kg)	1.02E-04	0.00E+00	3.28E-08	3.83E-08	5.47E-08	2.33E-08	5.96E-08	3.28E-08	4.34E-08
NOX (KG)	2.59E-02	0.00E+00	8.33E-06	9.70E-06	1.39E-05	5.90E-06	1.51E-05	8.32E-06	1.10E-05
VOC (KG)	2.71E-03	0.00E+00	8.73E-07	1.02E-06	1.45E-06	6.18E-07	1.58E-06	8.72E-07	1.15E-06
(KG)	3.40E-04	4.86E-02	8.43E-07	9.83E-07	1.40E-06	1.30E-06	1.91E-06	1.03E-06	1.37E-06
SO2 (KG)	3.29E-03	2.82E-03	1.10E-06	1.28E-06	1.83E-06	8.20E-07	2.02E-06	1.11E-06	1.47E-06
(KG)	4.24E+00	2.04E+00	1.40E-03	1.63E-03	2.33E-03	1.02E-03	2.55E-03	1.40E-03	1.85E-03
(KG)	3.95E+01	4.74E+01	1.34E-02	1.57E-02	2.24E-02	1.02E-02	2.48E-02	1.36E-02	1.80E-02
CO2 (kg)	2.42E+01	7.34E+01	8.90E-03	1.04E-02	1.48E-02	7.37E-03	1.67E-02	9.18E-03	1.21E-02
CH4 (kg)	4.37E-04	1.34E-03	1.61E-07	1.88E-07	2.68E-07	1.33E-07	3.03E-07	1.66E-07	2.19E-07
NO2(KG)	1.33E-04	4.71E-04	4.99E-08	5.82E-08	8.32E-08	4.22E-08	9.44E-08	5.18E-08	6.84E-08

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		3.71E-02	4.34E-02	7.40E-02	7.42E-02	1.16E-01	1.43E-01	5.64E-02
KG/m		4.60E-02	3.97E-02	7.66E-02	6.17E-02	3.09E-02	5.56E-02	4.77E-02
KG/M		1.02E-03	6.36E-04	1.40E-03	9.41E-03	1.53E-03	4.59E-03	1.34E-03
CO2 KG /m		8.72E-05	5.45E-05	1.15E-04	6.61E-05	7.27E-05	1.82E-04	6.61E-05
CH4 KG/m		4.88E-09	3.05E-09	6.42E-09	3.70E-09	4.07E-09	1.02E-08	3.70E-09
NO2 KG/m		3.36E-08	2.10E-08	4.42E-08	2.55E-08	2.80E-08	7.00E-08	2.55E-08

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%

ACSR 2020

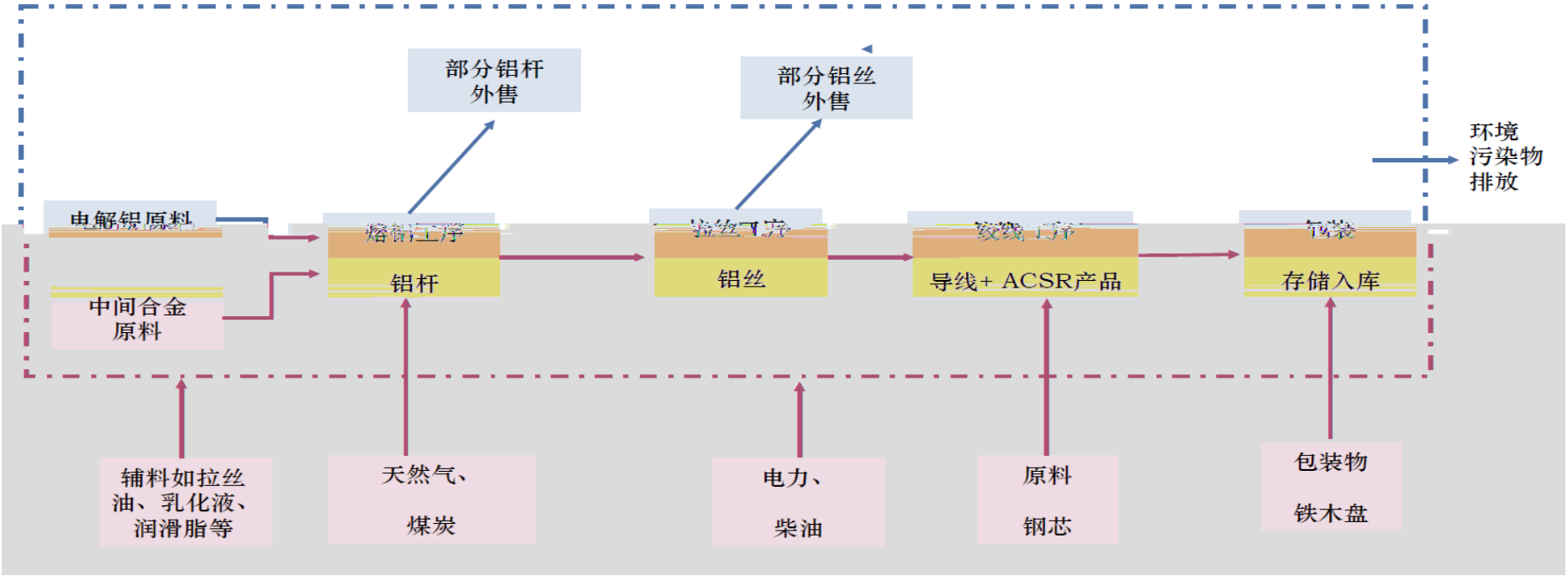
500KM.

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 45-3.38+7-2.25	1.07E-02	1.53E-02	7.51E-02	3.02E-02	3.02E-02	4.62E-03	4.62E-03	8.40E-02
ACSR 54-3.65+19-2.19	1.70E-02	1.62E-02	1.17E-01	1.52E-02	1.52E-02	7.50E-04	7.50E-04	8.40E-02
ACSR 54-7-2.68	9.21E-03	2.08E-02	1.34E-01	2.73E-02	2.73E-02	2.25E-03	2.25E-03	8.40E-02
ACSR 54-7-3.08	1.22E-02	1.16E-02	6.07E-02	2.34E-02	2.34E-02	6.55E-04	6.55E-04	8.40E-02

3.5 B2/B3/B4/B6

3.5.1 B2/B3/B4/B6

ACSR

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

ACSR	kw/km	(kw/km)
ACSR 26-3.44+7-2.68 (EN 50182)	7.25	8.07
ACSR 26-3.72+7-2.89 (ASTM B232)	8.54	9.50
ACSR 26-4.44+7-3.45 (ASTM B232)	12.33	13.69
ACSR 45-3.38+7-2.25 (EN 50182)	12.65	14.03
ACSR 54-3.65+19-2.19(EN 50182)	18.11	20.04
ACSR 54-7-2.68 (EN 50182)	9.38	10.43
ACSR 54-7-3.08 (EN 50182)	12.55	13.93

B	(TKM / cycle / m)	(KG / cycle / m)	(kg / cycle / m)	kWh / cycle / m
B2				
B3				
B6				

ACSR	Kw / km	(kwh / m / cycle)
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		

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	1.49E-05	6.35E-03	9.77E-02
ACSR 26-3.72+7-2.89	1.14E+00	1.14E-01	1.40E-02	3.42E-03	1.74E-05	7.40E-03	1.14E-01
ACSR 26-4.44+7-3.45	1.63E+00	1.63E-01	1.40E-02	4.88E-03	2.49E-05	1.06E-02	1.63E-01
ACSR 45-3.38+7-2.25	1.33E+00	1.33E-01	1.40E-02	4.00E-03	2.04E-05	8.66E-03	1.33E-01
ACSR 54-3.65+19-2.19	2.12E+00	2.12E-01	1.40E-02	6.37E-03	3.25E-05	1.38E-02	2.12E-01
ACSR 54-7-2.68	1.15E+00	1.15E-01	1.40E-02	3.45E-03	1.76E-05	7.48E-03	1.15E-01
ACSR 54-7-3.08	1.52E+00	1.52E-01	1.40E-02	4.56E-03	2.33E-05	9.89E-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

ACSR 54-7-2.68	5.63E+01	3.10E-04	5.83E-04	1.17E+03	1.97E-02	5.23E+01	5.23E+01	2.68E-01	9.38E-03	4.53E-07	7.63E+00
ACSR 54-7-3.08	7.38E+01	4.05E-04	7.60E-04	1.53E+03	2.55E-02	6.83E+01	6.83E+01	3.50E-01	1.20E-02	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)
30t	1.83E-01	1.19E-06	6.23E-07	2.20E+01	6.65E-04	1.70E-01	1.70E-01	3.70E-03	4.18E-05	1.58E-08	7.28E-06
ACSR 26-3.44+7-2.68	1.27E-01	8.23E-07	4.30E-07	1.52E+01	4.60E-04	1.17E-01	1.17E-01	2.55E-03	2.88E-05	1.08E-08	5.00E-06

30t	1.77E+00	4.18E-03	1.77E+00	1.04E-03	1.73E-07	5.35E-07	2.29E-04
ACSR 26-3.44+7-2.68	1.22E+00	2.88E-03	1.22E+00	7.20E-04	1.19E-07	3.68E-07	1.58E-04
ACSR 26-3.72+7-2.89	1.42E+00	3.35E-03	1.42E+00	8.42E-04	1.39E-07	4.30E-07	1.84E-04
ACSR 26-4.44+7-3.45	2.03E+00	4.80E-03	2.03E+00	1.20E-03	1.99E-07	6.15E-07	2.63E-04
ACSR 45-3.38+7-2.25	1.76E+00	4.15E-03	1.76E+00	1.04E-03	1.72E-07	5.30E-07	2.28E-04
ACSR 54-3.65+19-2.19	2.70E+00	6.38E-03	2.70E+00	1.60E-03	2.65E-07	8.18E-07	3.50E-04
ACSR 54-7-2.68	1.46E+00	3.45E-03	1.46E+00	8.67E-04	1.43E-07	4.43E-07	1.89E-04
ACSR 54-7-3.08	1.93E+00	4.55E-03	1.92E+00	1.14E-03	1.88E-07	5.83E-07	2.50E-04

4.3 A3 LCA

4-5 100 A3

ACSR 26-3.44+7-2.68	8.83E-01	5.15E-07	7.83E-07	1.72E+01	1.82E-04	8.30E-01	8.30E-01	2.50E-03	7.28E-05	2.29E-09	5.08E-05
ACSR 26-3.72+7-2.89	1.03E+00	6.00E-07	9.17E-07	2.00E+01	2.12E-04	9.67E-01	9.67E-01	2.93E-03	8.56E-05	2.68E-09	5.93E-05
ACSR 26-4.44+7-3.45	1.48E+00	8.58E-07	1.31E-06	2.85E+01	3.03E-04	1.38E+00	1.38E+00	4.20E-03	1.21E-04	3.83E-09	8.50E-05
ACSR 45-3.38+7-2.25	1.21E+00	7.00E-07	1.07E-06	2.33E+01	2.48E-04	1.13E+00	1.13E+00	3.43E-03	9.86E-05	3.13E-09	6.90E-05
ACSR 54-3.65+19-2.19	1.92E+00	1.12E-06	1.70E-06	3.73E+01	3.95E-04	1.80E+00	1.80E+00	5.45E-03	1.57E-04	4.95E-09	1.10E-04
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]02E+01	2.14E-04	9.75E-01	9.75E-01	2.95E-03	8.54E-05	2.70E-09	5.98E-05
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	2.83E-04	1.29E+00	1.29E+00	3.90E-03	1.12E-04	3.55E-09	7.90E-05 -

ACSR 54-3.65+19-2.19	2.09E+01	2.70E-01	2.06E+01	2.58E-01	1.60E-06	2.75E-05	3.48E-03
ACSR 54-7-2.68	1.13E+01	1.47E-01	1.12E+01	1.40E-01	8.67E-07	4.40E-05	1.89E-03
ACSR 54-7-3.08	1.50E+01	1.94E-01	1.48E+01	1.85E-01	1.15E-06	2.38E-05	2.49E-03

ACSR 54-7-3.08	1.29E+00	8.42E-06	4.40E-06	1.55E+02	4.70E-03	1.20E+00	1.20E+00	2.63E-02	2.95E-04	1.12E-07	5.13E-02

4-8 A4 ACSR

	PED (MJ)						
ACSR 26-3.44+7-2.68	8.15E+00	1.93E-02	8.13E+00	4.83E-03	7.95E-07	2.46E-06	1.06E-03
ACSR 26-3.72+7-2.89	9.42E+00	2.22E-02	9.33E+00	5.55E-03	9.17E-07	2.83E-06	1.22E-03
ACSR 26-4.44+7-3.45	1.37E+01	3.23E-02	1.36E+01	8.08E-03	1.33E-06	4.13E-06	1.77E-03
ACSR 45-3.38+7-2.25	1.13E+01	2.68E-02	1.13E+01	6.70E-03	1.11E-06	3.43E-06	1.47E-03
ACSR 54-3.65+19-2.19	1.74E+01	4.10E-02	1.74E+01	1.03E-02	1.70E-06	5.28E-06	2.26E-03
ACSR 54-7-2.68	1.04E+01	2.45E-02	1.03E+01	6.13E-03	1.02E-06	3.13E-06	1.34E-03
ACSR 54-7-3.08	1.25E+01	2.95E-02	1.24E+01	7.38E-03	1.22E-06	3.78E-06	1.62E-03

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	9.33E-01	6.75E-06	3.55E-06	1.25E+02	2.39E-03	8.00E-01	8.00E-01	1.41E-02	1.91E-04	8.92E-08	4.95E-05
ACSR 26-3.72+7-2.89	9.25E-01	6.75E-06	3.55E-06	1.25E+02	2.39E-03	7.95E-01	7.95E-01	1.41E-02	1.90E-04	8.92E-08	4.83E-05
ACSR 26-4.44+7-3.45	9.92E-01	6.75E-06	3.58E-06	1.26E+02	2.42E-03	8.20E-01	8.20E-01	1.42E-02	2.02E-04	8.92E-08	5.53E-05
ACSR 45-3.38+7-2.25	9.75E-01	6.75E-06	3.55E-06	1.26E+02	2.42E-03	8.15E-01	8.15E-01	1.42E-02	1.98E-04	8.92E-08	5.38E-05
ACSR 54-3.65+19-2.19	9.08E-01	6.75E-06	3.55E-06	1.25E+02	2.39E-03	7.93E-01	7.93E-01	1.41E-02	1.90E-04	8.92E-08	4.70E-05
ACSR 54-7-2.68	9.58E-01	6.78E-06	3.55E-06	1.26E+02	2.42E-03	8.10E-01	8.10E-01	1.42E-02	1.97E-04	8.92E-08	5.20E-05
ACSR 54-7-3.08	9.42E-01	6.75E-06	3.55E-06	1.25E+02	2.39E-03	8.03E-01	8.03E-01	1.41E-02	1.94E-04	8.92E-08	4.98E-05

4-10 100 A5

ACSR 26-3.44+7-2.68	1.02E+01	2.63E-02	1.02E+01	1.63E-02	9.75E-07	1.44E-04	1.57E-03
ACSR 26-3.72+7-2.89	1.02E+01	2.58E-02	1.02E+01	1.48E-02	9.75E-07	1.26E-04	1.53E-03

ACSR 26-4.44+7-3.45	1.03E+01	2.80E-02	1.03E+01	2.33E-02	9.75E-07	2.32E-04	1.74E-03
ACSR 45-3.38+7-2.25	1.03E+01	2.68E-02	1.02E+01	2.19E-02	9.75E-07	2.03E-04	1.69E-03
ACSR 54-3.65+19-2.19	1.02E+01	2.53E-02	1.02E+01	1.32E-02	9.75E-07	1.03E-04	1.48E-03
ACSR 54-7-2.68	1.03E+01	2.68E-02	1.02E+01	1.94E-02	9.75E-07	1.78E-04	1.64E-03
ACSR 54-7-3.08	1.02E+01	2.63E-02	1.02E+01	1.68E-02	9.75E-07	1.49E-04	1.58E-03

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	5.82E-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	6.83E-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	9.85E-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	1.01E+00	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	1.44E+00	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	7.51E-01	1.45E+00	4.28E+03
ACSR 54-7-3.08	5.70E+03	6.63E+00	1.40E-02	2.53E+05	1.63E+01	6.13E+03	6.13E+03	2.42E+01	1.00E+00	1.94E+00	5.70E+03

4-12 100 B2/B3/B4/B6

1.44E+05	1.04E+04	1.33E+05	1.27E-02	1.87E-06	5.85E+00	4.50E+01

4.7 C1-C4 LCA

4-13 100 C1-C4 LCA

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

ACSR 54-7-3.08	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

ACSR 26-3.44+7-2.68	4.17E-01	8.02E-03	4.09E-01	3.11E-03	2.81E-08	3.37E-05	6.87E-05
ACSR 26-3.72+7-2.89	3.51E+00	1.65E-02	3.49E+00	5.41E-03	3.28E-07	4.30E-05	4.72E-04
ACSR 26-4.44+7-3.45	5.02E+00	2.36E-02	4.99E+00	7.74E-03	4.69E-07	6.14E-05	6.75E-04
ACSR 45-3.38+7-2.25	4.09E+00	1.93E-02	4.07E+00	6.31E-03	3.83E-07	5.01E-05	5.51E-04
ACSR 54-3.65+19-2.19	6.53E+00	3.07E-02	6.49E+00	1.01E-02	6.10E-07	7.99E-05	8.78E-04
ACSR 54-7-2.68	3.54E+00	1.66E-02	3.52E+00	5.46E-03	3.31E-07	4.34E-05	4.76E-04
ACSR 54-7-3.08	4.68E+00	2.20E-02	4.66E+00	7.22E-03	4.38E-07	5.73E-05	6.30E-04

4.8 D LCA

Table 4-15 LCA Result of Product Reuse in Process D in 100 years

	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	-5.23E-03	-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	-6.11E-03	-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	-8.71E-03	-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	-8.71E-03	-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	-1.22E-02	-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	-6.58E-03	-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	-8.71E-03	-4.85E-07	-7.30E+00

Table 4-16 energy consumption and waste emission data in D Process

	-4.03E+02	-1.57E+01	-3.88E+02	-8.10E+01	-1.07E-06	-1.22E-03	-1.38E-01
	-4.70E+02	-1.83E+01	-4.53E+02	-9.42E+01	-1.25E-06	-1.42E-03	-1.62E-01
	-6.73E+02	-2.63E+01	-6.45E+02	-1.35E+02	-1.78E-06	-2.03E-03	-2.31E-01
	-6.73E+02	-2.63E+01	-6.45E+02	-1.35E+02	-1.78E-06	-2.03E-03	-2.31E-01
	-9.42E+02	-3.68E+01	-9.08E+02	-1.89E+02	-2.50E-06	-2.83E-03	-3.25E-01
	-5.08E+02	-1.98E+01	-4.88E+02	-1.02E+02	-1.34E-06	-1.53E-03	-1.74E-01
	-6.70E+02	-2.63E+01	-6.45E+02	-1.35E+02	-1.78E-06	-2.03E-03	-2.31E-01

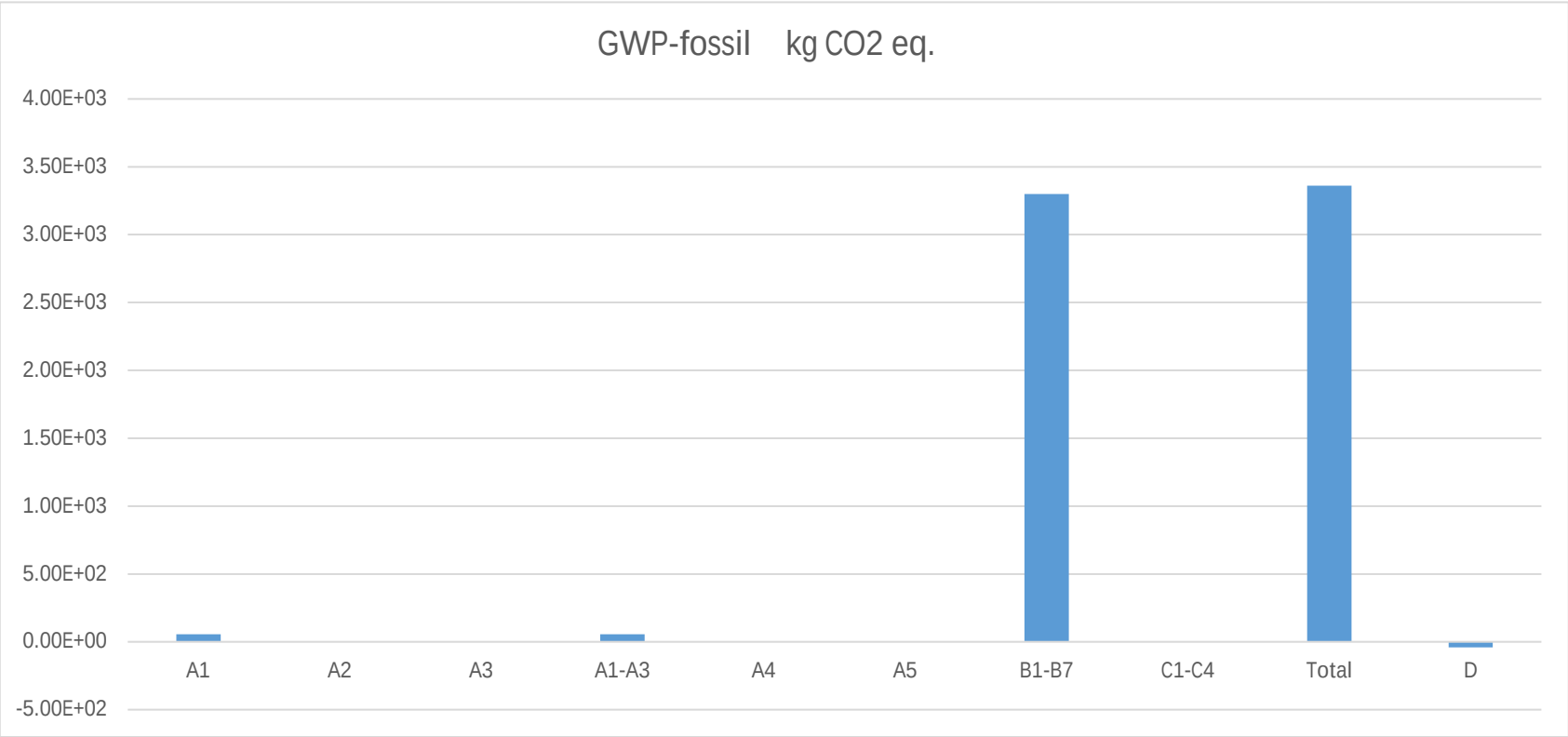
5

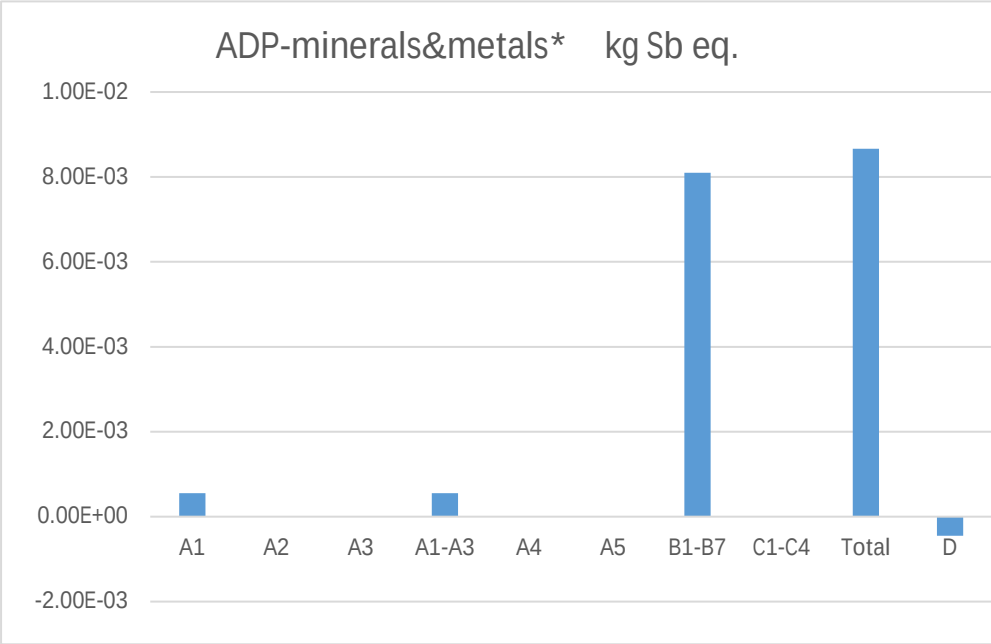
5.1

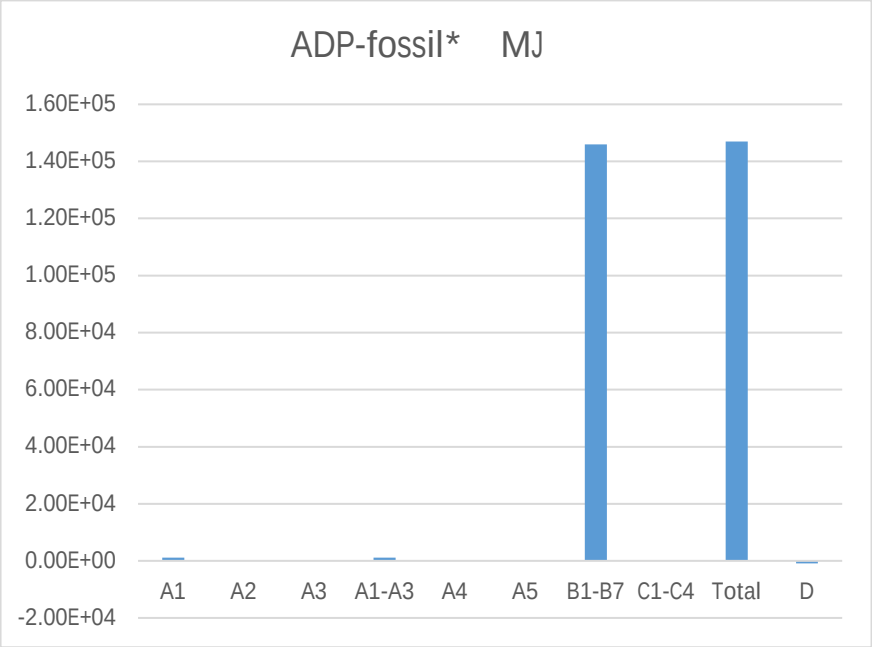
ACSR 26-3.44+7-2.68 LCA

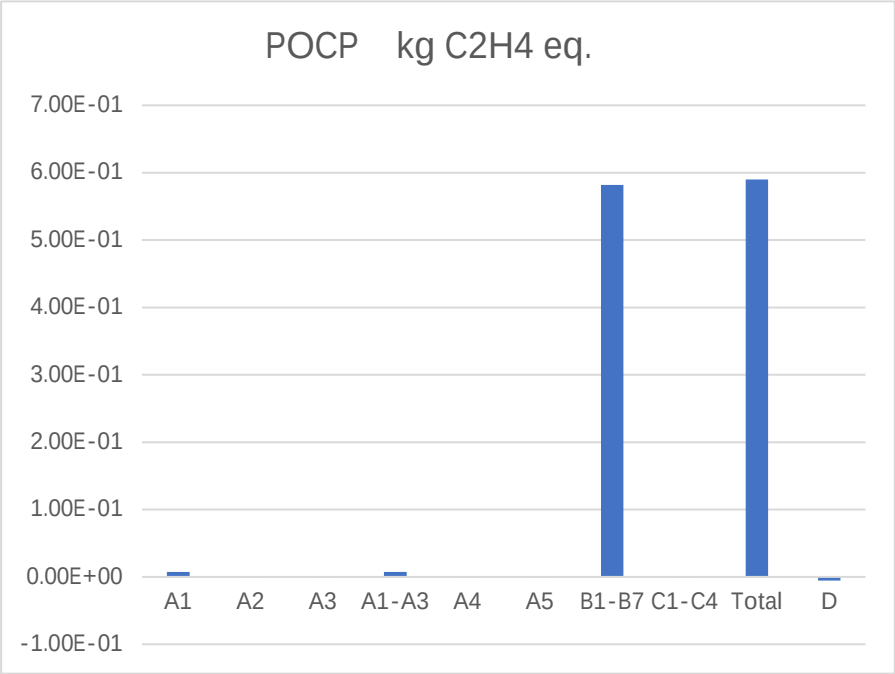
5-1 ACSR 26-3.44+7-2.68

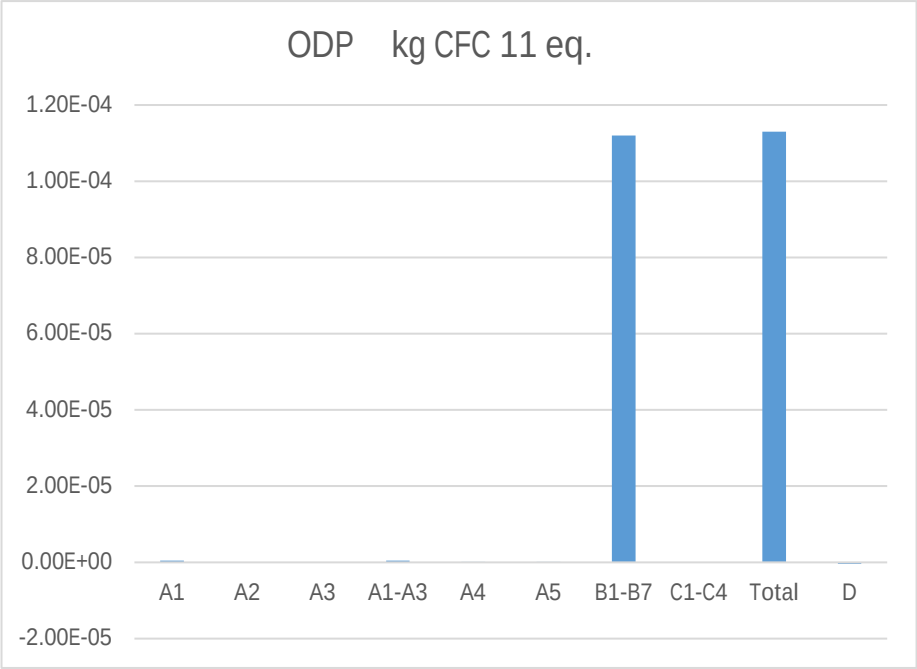
	kg CO2 eq.	kg CO2 eq.	kg CO2 eq.	kg Sb eq.	MJ	kg PO43- eq.	kg N-Eq	kg P-Eq	kg SO_2 eq.	kg C2H4 eq.	kg CFC 11 eq.	m3 H2Oeq
	5.46E+01	3.00E-04	5.46E+01	5.52E-04	1.12E+03	1.89E-02	5.07E+01	5.07E+01	2.58E-01	7.43E-03	4.29E-07	7.35E+00
	1.52E-01	9.87E-07	1.52E-01	5.16E-07	1.82E+01	5.52E-04	1.40E-01	1.40E-01	3.06E-03	2.88E-05	1.30E-08	6.00E-06
	1.06E+00	6.18E-07	1.06E+00	9.39E-07	2.06E+01	2.18E-04	9.96E-01	9.96E-01	3.00E-03	7.38E-05	2.75E-09	6.09E-05
	5.58E+01	3.03E-04	5.58E+01	5.52E-04	1.16E+03	1.97E-02	5.19E+01	5.19E+01	2.64E-01	7.53E-03	4.44E-07	7.35E+00
	1.01E+00	6.60E-06	1.01E+00	3.45E-06	1.22E+02	3.69E-03	9.39E-01	9.39E-01	2.06E-02	1.92E-04	8.70E-08	4.02E-02


GWP-fossil kg CO2 eq.
4.00E+03
3.50E+03
3.00E+03
2.50E+03
2.00E+03
1.50E+03
1.00E+03
5.00E+02
0.00E+00
-5.00E+02
A1
A2
A3
A1-A3
A4
A5
B1-B7
C1-C4
Total
D


ADP-minerals&metals* kg Sb eq.
1.00E-02
8.00E-03
6.00E-03
4.00E-03
2.00E-03
0.00E+00
-2.00E-03
A1
A2
A3
A1-A3
A4
A5
B1-B7
C1-C4
Total
D


ADP-fossil* MJ
1.60E+05
1.40E+05
1.20E+05
1.00E+05
8.00E+04
6.00E+04
4.00E+04
2.00E+04
0.00E+00
-2.00E+04
A1
A2
A3
A1-A3
A4
A5
B1-B7
C1-C4
Total
D





A2 Raw material transportation	A2 Raw material transportation

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

	GWP (kg CO2eq)	MEP - marine eutrophication (kg N-Eq)	FEP - freshwater eutrophication (kg P-Eq)	ADP (kg antimony eq.)	AP (kg SO2 eq)	POFP (kg NMVOC eq)	ADP(fossil fuel) (MJ)	(MJ)	ODP (kg CFC-11 eq)	EP (kg PO43- eq)	Waste Solids (kg)	Water Use (kg)	GWP (kg CO2eq)	(kg)	(MJ)	HW (KG)

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