



Wanbang Digital Energy Co., Ltd.



ENVIRONMENTAL PRODUCT DECLARATION

Products:

Nova Charging Stations

No. 39 Longhui Road, Wujin District,
Changzhou City, Jiangsu Province, P.R. China

In accordance with ISO 14025 and EN 50693

Program Operator	EPDIItaly
Publisher	EPDIItaly

Declaration Number	WBDE20240129V3
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Issue date	<u>27 / 03 / 2024</u>
Valid to	<u>27 / 03 / 2029</u>

Nova V2 DCST-EN-002-240-01 (DC2400EN08801+DC3600EN07401)



GENERAL INFORMATION

EPD OWNER

Name of the company	Wanbang Digital Energy Co., Ltd.
Registered office	Wanbang Digital Energy Co., Ltd.
The address of the registered office	No. 39 Longhui Road, Wujin District, Changzhou City, Jiangsu Province, P.R. China
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PROGRAM OPERATOR

EPDItaly	Via Gaetano De Castilia n° 10 - 20124 Milano, Italy
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INFORMATION ON THE EPD

EPD Tpye	Specific Product EPD
Product name (s)	Nova Charging Stations: <ol style="list-style-type: none">DCST-EN-002-240-01 (DC2400EN08801+DC3600EN07401)DCST-EN-002-240-01 (DC2400EN08801+DC3600EN07402)DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN07401)DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN07402)DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN04302F0005)DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN04302F0006)DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN07201)
Site (s)	No. 39 Longhui Road, Wujin District, Changzhou City, Jiangsu Province, P.R. China
Short description and technical information of the product (s)	Nova Charging Stations with 20-year life span, AC 400Vac±10%, Multiphase
Field of application of the product (s)	Electronic and electrical products and systems-Charging Stations
Product (s) reference standards (if any)	
CPC Code (number) https://unstats.un.org/unsd/classifications/Econ	4621 « electricity distributor or control apparatus »
LCA Consultant	The LCA report is written by: TÜV Rheinland (China) Ltd. www.tuv.com Contact person: Sharon Ye (sharon.ye@tuv.com)

VERIFICATION INFORMATION

PCR (title, version, date of publication or update)	<ul style="list-style-type: none">Core PCR: EPDItaly007 —PCR for Electronic and Electrical Products and Systems, Rev. 3. 2023/01/13
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	<ul style="list-style-type: none"> Sub-category PCR: EPDIItaly017 —PCR for Electronic and electrical products and systems – Charging Stations, Rev. 1. 2020/12/11
EPDIItaly Regulation (version, date of publication or update)	REGULATIONS OF THE EPDIItaly PROGRAMME VER. 6, ISSUED ON 2023/10/30
Project Report LCA	This EPD study is based on the LCA study described in the LCA report < LCA Report_ Wanbang Digital Energy Co., Ltd._Nova_v3 20240129>
Independent Verification Statement	<p>The PCR review was performed by Ing. Daniele Pace, Arch. Michele Paleari, Ing. Sara Toniolo - info@epditaly.it.</p> <p>Independent verification of the declaration and data, carried out according to ISO 14025: 2010.</p> <p><input type="checkbox"/> Internal <input checked="" type="checkbox"/> External</p> <p>Third party verification carried out by: ICMQ S.p.A., via Gaetano De Castilla n ° 10 - 20124 Milan, Italy. Accredited by Accredia.</p>
Comparability Statement	<p>Environmental statements published within the same product category, but from different programs, may not be comparable.</p> <p>In particular, EPDs of construction products may not be comparable if they do not comply with EN 15804: 2012 + A2: 2019.</p>
Liability Statement	<p>The EPD Owner releases EPDIItaly from any non-compliance with environmental legislation. The holder of the declaration will be responsible for the information and supporting evidence.</p> <p>EPDIItaly disclaims any responsibility for the information, data and results provided by the EPD Owner for life cycle assessment.</p>

OTHER INFORMATION

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PURPOSE & EMBEDDING SUSTAINABILITY

Wanbang Digital Energy Co., Ltd. (The abbreviation is Star Charge) is in the process of seeking their own survival and sustainable development. Star Charge considers achieving the goal of enterprise management and improve enterprise market position, and to keep the enterprise in the leading field of competition and the future expansion of the business environment always maintain sustained earnings growth and improvement of ability, ensure longevity enterprise for a long time.

GENERAL INFORMATION

Star Charge is the head unicorn in the field of digital energy in Asia, and one of the core brands of Wanbang Digital Energy. It provides equipment, platform, user and data operation services for global customers, and builds a user charging full life cycle platform with the help of vehicle sales, private charging, public charging, financial insurance and other businesses. Through the corporate strategy of "one end energy interconnection, one end industry interconnection", finally realize the long-term dream of "promoting the electrification of human transportation and leading the digitalization of global energy".Star Charge has been awarded the National Energy Administration "Energy Internet Major Application Demonstration" project, the National Ministry of Industry and Information Technology "Intelligent Manufacturing 2025 New Model Application" project, the National Ministry of Science and Technology key research and development project, the Ministry of Industry and Information Technology green manufacturing system integration project and other national projects, selected as a national demonstration platform, and led the establishment of new energy vehicle smart energy equipment innovation center, has also obtained a very professional gold content of ASPICE CL1 certification, IATF16949 and VDA6.3 certification, continued to apply for more than 400 R & D patents.

Star Charge is the world's more than 60 well-known car companies charging ecological strategic partner, as the charging field of the national standard formulation unit, Star Charge participated in the drafting of all domestic charging standards, and as a Chinese representative to participate in the drafting of IEC international standards, but also the National Standards Committee designated one of the two leading units of domestic high-power charging. In 2020, Star Charge first proposed the concept of "mobile energy network": a time-ubiquitous energy interconnection network built by mobile transportation, mobile energy carriers, mobile replenishing facilities and mobile communication terminals.

Innovative "Cloud Pipe End" that is, "Hardware + Software + Service" business model, called the digital energy ecology of China sample. In improving energy efficiency, promoting structural adjustment and energy conservation and emission reduction, helping the national automobile industry to stand on top of the world, and promoting the development and growth of the national new energy industry, Star Charge will always spare no effort.

In terms of product quality, obtained ISO9001&IATF16949 quality system certification. In terms of supplier selection, VDA6.3 audit and annual review of supplier quality are adopted to continuously improve supplier process and product quality. Continuous improvement of product quality through internal audit, such as process audit, system audit, product audit, layered process audit, etc., and establish Six Sigma projects, QCC

projects and lean improvement every year to find improvement space, improve product quality and increase product profits. According to customer requirements and company development, Star Charging has also obtained more than 20 system certifications such as ISO14001, ISO5001, SA8000, QC080000, ISO14064, ASPICE CL1 certification. At the same time, in the product certification, we have obtained CQC certification, CE certification, CB certification, UL certification, EV-Ready certification, PTB certification and other major certifications inboard and abroad, and our products implement important domestic and international standards, and become an Asian unicorn.

Star Charge is committed to providing customers with satisfactory products and solutions through continuous innovation and unremitting pursuit of high quality to bring people a more comfortable and convenient life.

As a responsible company to society and environment, Star Charge applied EPD Italy, conducted LCA study, and is willing to disclosure the actual environmental impact to the public and customers for Charging Stations products.

Declared in this EPD includes the following products and for each product the characteristics and composition were listed below.

Table 1 LCA study related types of Nova Charging Stations

Type for LCA Study	Related Types
1	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07401)
2	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07402)
3	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07401)
4	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07402)
5	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0005)
6	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0006)
7	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07201)

Here is the manufacturing process of the charging station in Wangbang Digital Energy Co., Ltd.



PRODUCT CHARACTERISTICS

Table 2 Product characteristics

Nova	Rectifier cabinet model	Type of operational conditions	Output voltage	Terminal model	Input voltage	Type of operational conditions:	Life span
1	DC2400EN08801	Multiphase	AC 400Vac±10%	DC3600EN07401 (Aries 非液冷)	AC 230Vac±10%	Monophase	20-year
2		Multiphase	AC 400Vac±10%	DC3600EN07402 (Aries 非液冷)	AC 230Vac±10%	Monophase	20-year
3	DC3600EN0004F0001	Multiphase	AC 400Vac±10%	DC3600EN07401 (Aries 非液冷)	AC 230Vac±10%	Monophase	20-year
4		Multiphase	AC 400Vac±10%	DC3600EN07402 (Aries 非液冷)	AC 230Vac±10%	Monophase	20-year
5		Multiphase	AC 400Vac±10%	DC3600EN04302F0005 (Neptune 非液冷)	AC 230Vac±10%	Monophase	20-year
6		Multiphase	AC 400Vac±10%	DC3600EN04302F0006 (Neptune 非液冷)	AC 230Vac±10%	Monophase	20-year
7		Multiphase	AC 400Vac±10%	DC3600EN07201 (Neptune 液冷)	AC 230Vac±10%	Monophase	20-year

MATERIALS COMPOSITION

Table 3 The Nova Charging Station material composition.

Material	IEC62474 Material classes ID	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07401)	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07402)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07401)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07402)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0005)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0006)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07201)	Unit
Core Board	NA	0.0165	0.0165	0.0165	0.0165	0.0172	0.0172	0.0172	kg/p
SD Card	NA	0.0005	0.0005	0.0005	0.0005	0.0100	0.0010	0.0010	kg/p
PC/ABS	M231	4.0522	4.0522	4.0522	4.0522	3.7700	3.7700	3.7695	kg/p
Copper	M121	140.4257	139.0124	162.8393	162.8299	158.0235	158.0235	161.5558	kg/p
PVC	M200	0.5230	0.5230	0.5230	0.5230	2.5134	0.5535	0.5535	kg/p
PE	M201	0.0078	0.0078	0.0078	0.0078	0.0096	0.0096	0.0096	kg/p
Switch	NA	1.9925	1.9925	1.6185	1.9925	2.5094	2.4814	4.1204	kg/p
Router	NA	0.2360	0.2360	0.2360	0.2360	0.2360	0.2360	0.2360	kg/p
Cable	NA	23.5125	35.1366	38.5082	23.5499	48.9997	39.7714	54.0069	kg/p
PCBA	NA	2.4947	2.4072	2.4947	2.4072	2.4692	2.4692	2.5301	kg/p
PA66	M208	8.3824	8.3398	8.3683	8.3538	8.3739	8.3983	8.4105	kg/p
PA	M208	0.3712	0.3853	0.3853	0.1333	0.0763	0.0763	0.0762	kg/p
Polyamide	M218	0.6556	0.6556	0.6556	0.8935	0.8730	0.8730	0.8502	kg/p
Connector	NA	0.0252	0.0436	0.0252	0.0436	0.0380	0.0204	0.0689	kg/p
AC contactor	NA	13.9030	13.9030	13.9030	13.9030	13.9030	13.9030	13.9030	kg/p
Steel	M119	13.0175	14.1787	13.0175	13.0175	12.9900	12.9900	12.9899	kg/p
PP	M202	20.0544	20.0544	20.0544	20.0544	20.0544	20.0544	20.0544	kg/p
Glass fiber	M342	10.5269	10.5269	14.8169	14.8169	14.5914	14.5914	14.5912	kg/p
Epoxy resin	M302	5.4130	5.4130	5.4856	5.4856	5.4490	5.4490	5.4490	kg/p
PBT	M211	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	kg/p
Ferro	M119	2.9160	2.4000	2.9160	2.4000	3.0730	3.0730	2.0410	kg/p
Electronics	NA	19.9719	4.9131	5.3502	16.4999	6.8018	6.3058	5.4558	kg/p
Aluminium	M120	113.2336	38.3522	49.8560	123.7870	44.6745	120.0591	120.3972	kg/p
PET	M209	2.7729	2.7489	2.8881	2.7729	2.7925	2.7925	2.7952	kg/p
Silicon Wafer	M321	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	kg/p
chemical organic	M399	0.2797	0.2797	0.3655	0.3655	0.3637	0.3637	4.9972	kg/p
Glass fiber	M342	0.0788	0.0788	0.0788	0.0788	0.0788	0.0788	0.0788	kg/p
BMC resin	M399	12.6560	12.6560	12.6560	12.6560	9.6736	9.6736	9.7422	kg/p
Polyvinyl chloride	M200	1.8248	1.8248	1.8248	1.8248	0.0000	1.9599	1.9599	kg/p
Paper	M341	0.0000	0.0240	0.0000	0.0000	0.0104	0.0000	0.0000	kg/p
Aluminium alloy	M120	5.7885	80.6699	79.7195	5.7885	75.7036	2.2877	0.3626	kg/p
Low alloy steel	M119	51.0340	51.0829	51.0340	51.0829	51.2404	51.0522	51.5240	kg/p
PC	M204	5.9261	5.8388	5.8110	5.9748	6.5744	6.6300	8.7275	kg/p
Zinc	M124	70.7649	70.7649	70.0149	70.0149	65.9216	67.0687	67.1588	kg/p
Silicon	M321	2.6651	2.6651	2.6375	2.6375	2.4867	2.5290	2.5324	kg/p
18/8 steel	M100	422.0792	422.0870	444.9548	444.9626	516.2447	525.6595	521.6198	kg/p
Fan	NA	0.0770	0.3197	0.0770	0.0770	0.5220	0.5220	0.5220	kg/p
silicon product	M321	8.7397	8.8757	13.0297	13.0297	13.0297	13.0297	13.0297	kg/p

Carbon black	M321	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	0.0500	kg/p
Iron trioxide	M199	0.0427	0.0427	0.0427	0.0427	0.0427	0.0427	0.0427	kg/p
polyethylene	M249	0.0133	0.0133	0.0133	0.0133	0.0133	0.0133	0.0133	kg/p
manganese	M149	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	kg/p
chromium	NA	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070	kg/p
Ethylene Acetic Acid	NA	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	kg/p
Acidic alumina	NA	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	kg/p
Strontium oxide	NA	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	kg/p
Ethylene glycol	NA	0.9372	0.9372	1.4058	1.4058	1.4058	1.4058	1.4058	kg/p
Integrated Circuit Card	NA	0.0116	0.0116	0.0116	0.0116	0.0116	0.0116	0.0116	kg/p
Tin	M126	0.0268	0.0268	0.0268	0.0268	0.0100	0.0100	0.0100	kg/p
Display	NA	2.2025	2.2025	2.2025	2.2025	1.2595	1.2595	1.2595	kg/p
Silicon Wafer	M321	0.0010	0.0010	0.0010	0.0010	0.0000	0.0000	0.0000	kg/p
Silicon dioxide	M321	0.0864	0.0864	0.0864	0.0864	0.0000	0.0000	0.0000	kg/p
Nickel	N123	0.0030	0.0030	0.0030	0.0030	0.0000	0.0000	0.0000	kg/p
Gold	M150	0.0015	0.0015	0.0015	0.0015	0.0000	0.0000	0.0000	kg/p
Polymethyl methacrylate	M249	0.0105	0.0105	0.0105	0.0105	0.0000	0.0000	0.0000	kg/p
Polytetrafluoroethylene	M249	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0521	kg/p
Total		969.8388	965.8864	1034.1108	1030.1584	1096.9249	1099.6001	1119.0159	kg/p

As for the weight % for each product, please see the table below:

Material	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07401)	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07402)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07401)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07402)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0005)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0006)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07201)
Core Board	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SD Card	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PC/ABS	0.42%	0.42%	0.39%	0.39%	0.34%	0.34%	0.34%
Copper	14.48%	14.39%	15.75%	15.81%	14.41%	14.37%	14.44%
PVC	0.05%	0.05%	0.05%	0.05%	0.23%	0.05%	0.05%
PE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Switch	0.21%	0.21%	0.16%	0.19%	0.23%	0.23%	0.37%
Router	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%
Cable	2.42%	3.64%	3.72%	2.29%	4.47%	3.62%	4.83%
PCBA	0.26%	0.25%	0.24%	0.23%	0.23%	0.22%	0.23%
PA66	0.86%	0.86%	0.81%	0.81%	0.76%	0.76%	0.75%
PA	0.04%	0.04%	0.04%	0.01%	0.01%	0.01%	0.01%
Polyamide	0.07%	0.07%	0.06%	0.09%	0.08%	0.08%	0.08%
Connector	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
AC contactor	1.43%	1.44%	1.34%	1.35%	1.27%	1.26%	1.24%
Steel	1.34%	1.47%	1.26%	1.26%	1.18%	1.18%	1.16%
PP	2.07%	2.08%	1.94%	1.95%	1.83%	1.82%	1.79%
Glass fiber	1.09%	1.09%	1.43%	1.44%	1.33%	1.33%	1.30%
Epoxy resin	0.56%	0.56%	0.53%	0.53%	0.50%	0.50%	0.49%
PBT	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ferro	0.30%	0.25%	0.28%	0.23%	0.28%	0.28%	0.18%

Electronics	2.06%	0.51%	0.52%	1.60%	0.62%	0.57%	0.49%
Aluminium	11.68%	3.97%	4.82%	12.02%	4.07%	10.92%	10.76%
PET	0.29%	0.28%	0.28%	0.27%	0.25%	0.25%	0.25%
Silicon Wafer	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
chemical organic	0.03%	0.03%	0.04%	0.04%	0.03%	0.03%	0.45%
Glass fiber	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
BMC resin	1.30%	1.31%	1.22%	1.23%	0.88%	0.88%	0.87%
Polyvinyl chloride	0.19%	0.19%	0.18%	0.18%	0.00%	0.18%	0.18%
Paper	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Aluminium alloy	0.60%	8.35%	7.71%	0.56%	6.90%	0.21%	0.03%
Low alloy steel	5.26%	5.29%	4.94%	4.96%	4.67%	4.64%	4.60%
PC	0.61%	0.60%	0.56%	0.58%	0.60%	0.60%	0.78%
Zinc	7.30%	7.33%	6.77%	6.80%	6.01%	6.10%	6.00%
Silicon	0.27%	0.28%	0.26%	0.26%	0.23%	0.23%	0.23%
18/8 steel	43.52%	43.70%	43.03%	43.19%	47.06%	47.80%	46.61%
Fan	0.01%	0.03%	0.01%	0.01%	0.05%	0.05%	0.05%
silicon product	0.90%	0.92%	1.26%	1.26%	1.19%	1.18%	1.16%
Carbon black	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%
Iron trioxide	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
polyethylene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
manganese	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
chromium	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ethylene Acetic Acid	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Acidic alumina	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Strontium oxide	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ethylene glycol	0.10%	0.10%	0.14%	0.14%	0.13%	0.13%	0.13%
Integrated Circuit Card	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Tin	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Display	0.23%	0.23%	0.21%	0.21%	0.11%	0.11%	0.11%
Silicon Wafer	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Silicon dioxide	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.00%
Nickel	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Gold	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Polymethyl methacrylate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Polytetrafluoroethylene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

DECLARED UNIT (FUNCTIONAL UNIT)

The declared unit is specified in 1 pcs of Nova Charging Stations. The functional unit is per pcs of Nova Charging Stations with a RSL of 20 years.

SYSTEM BOUNDARIES

The life cycle of the Charging Stations, is a “from cradle to grave” analysis and covers the following main life cycle stages.

The following table shows the stages of the product life cycle and the information stages according to EN 50693 and PCR EPDIItaly007 and EPDIItaly017 for the evaluation of electronic and electrical products and systems.

Table 4 System boundaries

MANUFACTURING STAGE		DISTRIBUTION STAGE	INSTALLATION STAGE	USE & Maintenance STAGE	END-OF-LIFE STAGE De-installation
UPSTREAM MODULE	CORE MODULE	DOWNSTREAM MODULE			
extraction of raw materials, including waste recycling processes and the production of semi-finished and ancillary products	manufacturing of the product constituents, including all the stages	IN ACCORDANCE WITH EN 50693			
transportation of raw materials to the manufacturing company	product assembly				
	packaging				
	waste handling processes				

The stages of the product life cycle and the information considered for the evaluation are:

- Manufacturing upstream includes raw materials, and production activities of suppliers, including transport of semi-finished items and subassemblies to Star Charge.
- Manufacturing core includes local consumptions due to manufacturing of the products, the relevant assembling and waste due to manufacturing.
- The distribution stage includes the impacts related to the distribution of the product from manufacture to the logistic center of the receivers.
- The installation stage includes the impact related to the transportation of packaging waste to recycling place.
- The use stages include the impact related to energy consumption during the service life of the product.
- End of life includes the transportation and operations for the disposal of the product at the end of its service life.

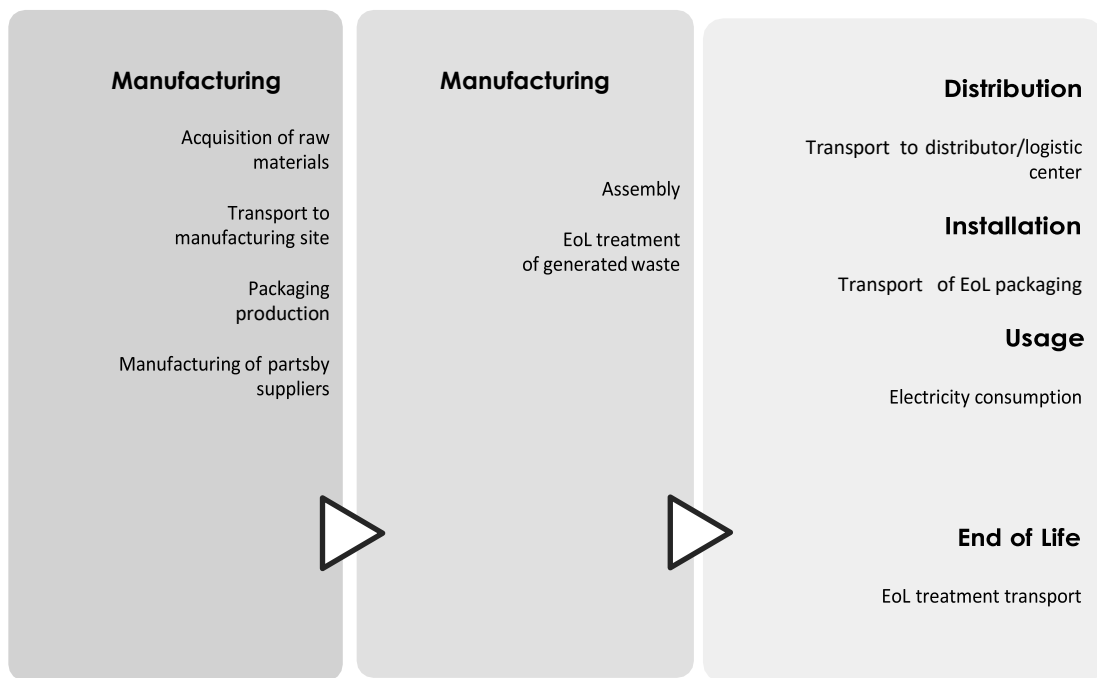


Figure 1 System boundary

TEMPORAL AND GEOGRAPHICAL BOUNDARIES

The Star Charge's component suppliers are sourced: China. All primary data collected from Star Charge factory are from July 2022 to June 2023.

The selected Ecoinvent processes in the LCA model have a global representativeness, due to the unclear origin of each component. In this way, the conservative approach is adopted.

BOUNDARIES IN THE LIFE CYCLE

As indicated in the PCR EPDIItaly, capital goods, such as buildings, machinery, tools and infrastructure, the packaging for internal transport which cannot be allocated directly to the production of the reference product, may be excluded from the system boundary.

DATA QUALITY

In this EPD, both primary and secondary data are used. Site specific foreground data have been provided by Star Charge. Main data sources are the bill of materials or weighting photos available on the enterprise resource planning. For all processes for which primary are not available, generic data originating from the Ecoinvent v3.9.1 database, allocation cut-off by classification, are used. The Ecoinvent database is available in the SimaPro 9.5.0.0 software used for the calculations.

ENVIRONMENTAL IMPACT INDICATORS

The information obtained from the inventory analysis is aggregated according to the effects related to the various environmental issues. According to PCR EPDIItaly007 PCR, EPDIItaly017 and EN 50693 the environmental impact indicators must be determined using the characterization factors and impact assessment methods specified in EN 15804 + A2 Method V1.02.

PCR EPDIItaly007, EPDIItaly017 and the EN 50693 standard establish four indicators for climate impact (GWP-GHG): GWP (total) which includes all greenhouse gases; GWP (fossil fuels); GWP(biogenic carbon) which includes the emissions and absorption of biogenic carbon dioxide and biogenic carbon stored in the product; GWP (land use).

Table 5 Impact indicators used in EPD

Impact category	Unit of measurement
ENVIRONMENTAL IMPACT DESCRIPTIVE PARAMETERS	
Climate change	kg CO2 eq
Climate change - Biogenic	kg CO2 eq
Climate change - Fossil	kg CO2 eq
Climate change - Land use and land use change	kg CO2 eq
Eutrophication, marine	kg N eq
Ozone depletion	kg CFC11 eq
Acidification	mol H+ eq
Eutrophication aquatic freshwater	kg P eq
Eutrophication aquatic marine	kg N eq
Eutrophication terrestrial	mol N eq
Photochemical ozone formation	kg NMVOC eq
Depletion of abiotic resources – minerals and metals	kg Sb eq
Depletion of abiotic resources – fossil fuels	MJ
Water use	m ³
PARAMETERS DESCRIBING RESOURCE USE	

Use of non-renewable primary energy excluding nonrenewable primary energy resources used as raw material (PENRE)	MJ
Use of renewable primary energy excluding renewable primary energy resources used as raw material (PERE)	MJ
Use of non-renewable primary energy resources used as raw material (PENRM)	MJ
Use of renewable primary energy resources used as raw material (PERM)	MJ
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT)	MJ
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)	MJ
Net use of fresh water (FW)	m ³
Use of secondary materials (MS)	kg
Use of renewable secondary fuels (RSF)	MJ
Use of non-renewable secondary fuels (NRSF)	MJ
WASTE PRODUCTION DESCRIPTIVE PARAMETERS	
Hazardous waste disposed (HWD)	HWD (kg)
Non-hazardous waste disposed (NHWD)	NHWD (kg)
Radioactive waste disposed (RWD)	RWD (kg)
Materials for energy recovery (MER)	MER (kg)
Material for recycling (MFR)	MFR (kg)
Components for reuse (CRU)	CRU (kg)
Exported thermal energy (ETE)	ETE (MJ)
Exported electricity energy (EEE)	EEE (MJ)

As for the calculation of each impact indicators adopted according with SimaPro help center document “How to calculate EN 15804:A2 indicators in desktop SimaPro” and we can find more explanation in LCA report.

ALLOCATION RULES

The energy demand for product line for products is allocated by yield based on total production amount from 2022.07.01 till 2023.06.30.

In the system studied, there is no co-product which is defined as "Partitioning the input or output flows of a process or a product system between the product system under study and one or more other product systems." [Source: ISO 14044:2006]. Therefore, there is no co-product allocation.

LIMITATIONS AND SIMPLIFICATIONS

The data of energy consumption and pollutants emission in the raw material acquisition stage are from the Ecoinvent 3.9.1 database published by the European Ecoinvent Center.

The emission factor of China electricity is from the Ecoinvent 3.9.1 database. This dataset has been extrapolated from year 2015 to the year of the calculation (2020). China state grid launched the green electricity program in late of 2021, however, the green electricity selling information is not public available when creating this LCA report. Thus we use the Ecoinvent data base data for China electricity [Electricity,

high voltage {CN} | market group for | Cut-off, S] is deemed conservative as this value is higher than the reality.

The Ecoinvent v3.9.1 by classification system processes are used to model the background system of the processes.

Due to the large amounts of components in the module, raw material inputs are modelled with data from Ecoinvent representing a global market coverage. These datasets are assumed to be representative.

MANUFACTURING STAGE

18/8 steel is the most frequently used material, followed by copper. . As for the electricity consumed during the manufacturing plant, we assessed the consumption from 2 parts, one is the PCBA process consumption, and another part is the assembly of the whole products. For PCBA process energy consumption was metered in the workshop and the electricity was allocated by output in Pieces during the data period, then PCBA process energy consumption was computed based on the No. of designated PCBA assembled in specified Charging station. And the electricity used for assembly of the whole product was allocated by output in watt. which is the unit used for output capacity. the detailed information for PCBA amount and energy allocation please refer to the below table:

#	Product series	Model	Efficiency/kw	Amount of PCBA/pieces	Average electricity consumptionkw/pieces
1	Nova	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07401)	240	21	91.3527
2		DCST-EN-002-240-01(DC2400EN08801+DC3600EN07402)	240	20	89.4460
3		DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07401)	360	21	117.0086
4		DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07402)	360	20	115.1019
5		DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0005)	360	22	118.9153
6		DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0006)	360	22	118.9153
7		DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07201)	360	24	122.7287

The packaging (Plywood etc.) are also included in the analysis in the manufacturing stage-core. Star Charge receives packaging components from outside suppliers and packages the module before shipping them.

The transport distances and weight from raw materials suppliers to the manufacturing are assumed as below:

Item	Model	By truck distance	Unit
1	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07401)	255.6061	t km/p

2	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07402)	247.8261	t km/p
3	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07401)	348.9375	t km/p
4	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07402)	341.1480	t km/p
5	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0005)	353.3572	t km/p
6	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0006)	349.1543	t km/p
7	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07201)	339.7476	t km/p

“Transport, freight, lorry, unspecified {GLO} | market for | Cut-off, S;” is used

The manufacturing of the product is located in Star Charge factory of Wujin DistrictNo.39 Longhui Rd, Changzhou, Jiangsu, China. In the factory, the different components and subassemblies are assembled to abroad.

For the manufacturing phase, the general China high voltage electricity mix from Ecoinvent v3.9.1 is used.

DISTRIBUTION

The transport distances from the plant to the place of use are shown as below: However, the data source is from <https://sea-distances.orf/>

Table 6 Transportation activity data

Item	Model	By truck distance	By ship distance	Unit
1	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07401)	679.1641	23802.9981	t km/p
2	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07402)	676.9734	23726.2200	t km/p
3	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07401)	714.8312	25053.0380	t km/p
4	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07402)	712.6380	24976.1723	t km/p
5	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0005)	715.1658	25064.7670	t km/p
6	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0006)	716.6229	25115.8332	t km/p
7	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07201)	728.4696	25531.0293	t km/p

USE

Use and maintenance are modelled according to the PCR EPDIItaly017. Market: worldwide, mainly Italy, Spain, Romania, UK, Germany, France, Hungary, Bulgaria, Israel.

As for the Puse, the Puse is base on measured data. The operarion steps are as follows:

1. Connect the input side of the whole pile with the power analyzer;
2. The charging pile return to the standby state (disconnect the AC contactor, other auxiliary circuits remain connected);
3. Read the active power value on the power analyzer, this active power value is Puse.

And the Puse test result please see below table:

Table 7 The Puse tested result

Product series	Certified model	Stand-by power Consumption Active Power (W)
Nova V2	DCST-EN-002-240-01 (DC2400EN08801+DC3600EN07401)	77.49
Nova V2	DCST-EN-002-240-01 (DC2400EN08801+DC3600EN07402)	77.49
Nova V2	DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN07401)	77.49
Nova V2	DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN07402)	77.49
Nova V2	DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN04302F0005)	77.49
Nova V2	DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN04302F0006)	77.49
Nova V2	DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN07201)	77.49

As for the electricity consumption, according to the calculation formular in PCR, and RSL=20, we can calculation the Euse of each product. The calculation formular as bellow:

$$E_{use} [kWh] = \frac{P_{use} * 8760 * RSL}{1000}$$

Therefore, here are the summary data of each charging stations during use phase.

Table 8 Data list of 76.8NESP Module

USE & Maintenance	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07401)	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07402)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07401)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07402)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0005)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0006)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07201)	Unit
electricity	13576.2480	13576.2480	13576.2480	13576.2480	13576.2480	13576.2480	13576.2480	kwh /p
glass fiber	76.0000	76.0000	76.0000	76.0000	76.0000	76.0000	76.0000	kg/p cs
copper+18/8 steel	189.4200	126.0600	189.4200	189.4200	189.4200	189.4200	189.4200	kg/p cs
cable	10.2652	16.8608	19.0397	10.2652	10.2652	10.2652	10.2652	kg/p cs
copper+PP	47.9634	47.9634	47.9634	47.9634	47.9634	47.9634	47.9634	kg/p cs
By ship	2800.1352	2175.7271	2896.6545	2800.1352	2800.1352	2800.1352	2800.1352	t km/p
By truck	97.0946	80.0653	97.7635	97.0946	97.0946	97.0946	97.0946	t km/p
injection	99.9817	99.9817	99.9817	99.9817	99.9817	99.9817	99.9817	kg/p cs
Metal working	213.4017	150.0417	213.4017	213.4017	213.4017	213.4017	213.4017	kg/p cs
waste glass fiber	76.0000	76.0000	76.0000	76.0000	76.0000	76.0000	76.0000	kg/p cs
waste copper	118.6917	87.0117	118.6917	118.6917	118.6917	118.6917	118.6917	kg/p cs
waste steel	94.7100	63.0300	94.7100	94.7100	94.7100	94.7100	94.7100	kg/p cs
waste cable	10.2652	16.8608	19.0397	10.2652	10.2652	10.2652	10.2652	kg/p cs
waste PP	23.9817	23.9817	23.9817	23.9817	23.9817	23.9817	23.9817	kg/p cs

END OF LIFE

The end-of-life stage is modelled according to PCR EPDIItaly017 and WEEE Directive(2012/19/EU). The percentages for end-of-life treatments of the products are taken from WEEE Directive(2012/19/EU). The disposal rate and recycling rate of each material are followed the specific data fro EN 50693 2019.

Here is the table of the summary disposal material amount of each charging stations during end-of-life:

Table 9 Disposal material consumption of Nova Charging station

	Disposal rate	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07401)	DCST-EN-002-240-01(DC2400EN08801+DC3600EN07402)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07401)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07402)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0005)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN04302F0006)	DCST-EN-002-360-05(DC3600EN0004F0001+DC3600EN07201)	Unit
Steel	20%	87.01934	87.25314	91.59446	91.59602	105.84694	107.7299	106.92194	kg/p
Other ferrous metals	20%	0.5832	0.48	0.5832	0.48	0.6146	0.6146	0.4082	kg/p
Aluminium	30%	35.70663	35.70663	38.87265	38.87265	36.11343	36.70404	36.22794	kg/p
Copper	40%	56.17028	55.60496	65.13572	65.13196	63.2094	63.2094	64.62232	kg/p
Other non-ferrous metals	40%	28.32528	28.32528	28.02528	28.02528	26.37944	26.83828	26.87432	kg/p
PP	40%	8.02176	8.02176	8.02176	8.02176	8.02176	8.02176	8.02176	kg/p
ABS	40%	1.62088	1.62088	1.62088	1.62088	1.508	1.508	1.5078	kg/p
Rubber	50%	0	0.5	1	1.5	2	2.5	3	kg/p
Other plastic or plastic containing fillers	50%	24.5812	24.5113	26.76255	26.77255	25.50965	25.54965	26.65465	kg/p
Glass	40%	0.881	0.881	0.881	0.881	0.5038	0.5038	0.5038	kg/p
PCB	100%	2.5233	2.4358	2.5233	2.4358	2.508	2.499	2.5599	kg/p
battery	0%	16.5	17.5	18.5	19.5	20.5	21.5	22.5	kg/p

The following tables show the environmental impact indicators of the life cycle of a Nova Charge Station, as indicated by PCR EPDIItaly007, sub-PCR EPDIItaly017 and EN 50693:2019.

The indicators are divided into the contribution of the processes to the different modules (upstream, core and downstream) and stages (manufacturing, distribution, use and end-of-life).

Table 10 Environmental impacts of per pcs of Nova V2 Charge Station: DCST-EN-002-240-01 (DC2400EN08801+DC3600EN07401)

Item	Unit	Total	MANUFACTURING STAGE		DISTRIBUTION	INSTALLATION	USE STAGE	END-OF-LIFE
			UPSTREAM MODULE	CORE MODULE				
Climate change	kg CO2 eq	2.31E+04	1.24E+04	1.13E+02	3.43E+02	2.28E+02	9.49E+03	5.02E+02
Climate change - Biogenic	kg CO2 eq	7.40E+02	1.79E+02	-1.45E+00	1.07E-01	2.10E+02	3.51E+02	4.04E-01
Climate change - Fossil	kg CO2 eq	2.23E+04	1.22E+04	1.14E+02	3.42E+02	1.72E+01	9.13E+03	5.02E+02
Climate change - Land use and land use change	kg CO2 eq	2.76E+01	2.06E+01	8.27E-02	5.46E-01	4.29E-02	5.93E+00	4.08E-01
Ozone depletion	kg CFC11 eq	6.43E-04	3.95E-04	8.08E-07	5.45E-06	3.20E-07	2.40E-04	1.84E-06
Acidification	mol H+ eq	2.68E+02	1.64E+02	5.88E-01	7.69E+00	1.02E-01	9.45E+01	9.32E-01
Eutrophication aquatic freshwater	kg P eq	2.55E+00	1.89E+00	2.63E-03	1.96E-03	2.04E-04	6.45E-01	6.56E-03
Eutrophication aquatic marine	kg N eq	2.85E+01	1.79E+01	1.19E-01	1.98E+00	4.50E-02	8.21E+00	2.40E-01
Eutrophication terrestrial	mol N eq	3.48E+02	2.17E+02	1.31E+00	2.19E+01	4.45E-01	1.05E+02	2.61E+00
Photochemical ozone formation	kg NMVOC eq	1.02E+02	6.36E+01	3.60E-01	6.04E+00	1.51E-01	3.14E+01	7.91E-01
Depletion of abiotic resources – minerals and metals	kg Sb eq	5.04E+00	4.02E+00	2.28E-04	5.49E-04	4.94E-05	1.02E+00	8.58E-04
Depletion of abiotic resources – fossil fuels	MJ	2.86E+05	1.52E+05	1.19E+03	4.40E+03	2.40E+02	1.26E+05	2.26E+03
Water use	m3	5.53E+03	3.33E+03	2.58E+01	1.45E+01	3.71E-01	2.13E+03	2.74E+01
Use of non-renewable primary energy excluding nonrenewable primary energy resources used as raw material (PENRE)	MJ	2.84E+05	1.53E+05	1.30E+05	8.04E+01	0.00E+00	0.00E+00	0.00E+00
Use of renewable primary energy excluding renewable primary energy resources used as raw material (PERE)	MJ	2.16E+04	2.16E+04	2.26E+01	1.43E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable primary energy resources used as raw material (PENRM)	MJ	1.16E+01	6.77E+00	4.85E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable primary energy resources used as raw material (PERM)	MJ	2.15E+01	0.00E+00	2.15E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT)	MJ	2.84E+05	1.52E+05	1.19E+03	4.41E+03	2.40E+02	1.26E+05	8.04E+01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)	MJ	2.17E+04	2.15E+04	1.30E+02	4.58E-01	4.14E+01	2.29E+00	1.43E+00
Net use of fresh water (FW)	m3	5.32E-01	2.79E-01	1.21E-03	6.55E-04	6.23E-05	2.46E-01	4.16E-03
Use of secondary materials (MS)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Use of renewable secondary fuels (RSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels (NRSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hazardous waste disposed (HWD)	HWD (kg)	4.00E+02	1.41E+01	1.85E+00	7.68E-02	8.33E-01	3.17E+02	6.65E+01	
Non-hazardous waste disposed (NHWD)	NHWD (kg)	5.50E+03	3.83E+03	1.21E+01	1.03E+02	8.86E+01	1.40E+03	6.33E+01	
Radioactive waste disposed (RWD)	RWD (kg)	5.32E-01	2.79E-01	1.21E-03	6.55E-04	6.23E-05	2.46E-01	4.16E-03	
Materials for energy recovery (MER)	MER (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Material for recycling (MFR)	MFR (kg)	1.10E-01	0.00E+00	0.00E+00	0.00E+00	1.10E-01	0.00E+00	0.00E+00	
Components for reuse (CRU)	CRU (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Exported thermal energy (ETE)	ETE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Exported electricity energy (EEE)	EEE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

Table 11 Environmental impacts of Nova V2 Charge Station: DCST-EN-002-240-01 (DC2400EN08801+DC3600EN07402)

Item	Unit	Total	MANUFACTURING STAGE		DISTRIBUTION	INSTALLATION	USE STAGE	END-OF-LIFE
			UPSTREAM MODULE	CORE MODULE				
Climate change	kg CO2 eq	2.21E+04	1.19E+04	1.11E+02	3.43E+02	2.30E+02	8.96E+03	5.02E+02
Climate change - Biogenic	kg CO2 eq	6.84E+02	1.78E+02	-1.44E+00	1.07E-01	2.10E+02	2.97E+02	4.02E-01
Climate change - Fossil	kg CO2 eq	2.13E+04	1.17E+04	1.12E+02	3.42E+02	1.92E+01	8.66E+03	5.02E+02
Climate change - Land use and land use change	kg CO2 eq	2.60E+01	1.96E+01	8.20E-02	5.46E-01	4.29E-02	5.28E+00	4.07E-01
Ozone depletion	kg CFC11 eq	6.12E-04	3.67E-04	8.05E-07	5.45E-06	3.21E-07	2.37E-04	1.83E-06
Acidification	mol H+ eq	2.46E+02	1.61E+02	5.78E-01	7.69E+00	1.02E-01	7.55E+01	9.30E-01
Eutrophication aquatic freshwater	kg P eq	2.35E+00	1.78E+00	2.59E-03	1.96E-03	2.05E-04	5.57E-01	6.54E-03
Eutrophication aquatic marine	kg N eq	2.68E+01	1.73E+01	1.17E-01	1.98E+00	4.52E-02	7.17E+00	2.39E-01
Eutrophication terrestrial	mol N eq	3.26E+02	2.09E+02	1.29E+00	2.19E+01	4.47E-01	9.09E+01	2.60E+00
Photochemical ozone formation	kg NMVOC eq	9.59E+01	6.14E+01	3.54E-01	6.04E+00	1.51E-01	2.72E+01	7.89E-01
Depletion of abiotic resources – minerals and metals	kg Sb eq	4.60E+00	3.81E+00	2.27E-04	5.49E-04	4.95E-05	7.90E-01	8.55E-04
Depletion of abiotic resources – fossil fuels	MJ	2.75E+05	1.46E+05	1.18E+03	4.40E+03	2.40E+02	1.21E+05	2.25E+03
Water use	m3	5.19E+03	3.25E+03	2.56E+01	1.45E+01	3.78E-01	1.87E+03	2.73E+01
Use of non-renewable primary energy excluding nonrenewable primary energy resources used as raw material (PENRE)	MJ	2.72E+05	1.47E+05	1.25E+05	6.58E+01	0.00E+00	0.00E+00	0.00E+00
Use of renewable primary energy excluding renewable primary energy resources used as raw material (PERE)	MJ	2.09E+04	2.09E+04	2.26E+01	1.43E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable primary energy resources used as raw material (PENRM)	MJ	1.16E+01	6.77E+00	4.85E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable primary energy resources used as raw material (PERM)	MJ	2.15E+01	0.00E+00	2.15E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT)	MJ	2.72E+05	1.46E+05	1.18E+03	4.41E+03	2.40E+02	1.21E+05	6.58E+01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)	MJ	2.09E+04	2.07E+04	1.28E+02	4.55E-01	4.14E+01	2.29E+00	1.43E+00

Net use of fresh water (FW)	m3	1.90E+02	1.11E+02	6.56E-01	5.87E-01	3.74E-02	7.60E+01	1.88E+00
Use of secondary materials (MS)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels (RSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels (NRSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hazardous waste disposed (HWD)	HWD (kg)	3.43E+02	1.40E+01	1.85E+00	7.68E-02	8.47E-01	2.60E+02	6.60E+01
Non-hazardous waste disposed (NHWD)	NHWD (kg)	5.18E+03	3.78E+03	1.20E+01	1.03E+02	8.89E+01	1.13E+03	6.31E+01
Radioactive waste disposed (RWD)	RWD (kg)	5.07E-01	2.65E-01	1.19E-03	6.55E-04	6.24E-05	2.36E-01	4.15E-03
Materials for energy recovery (MER)	MER (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling (MFR)	MFR (kg)	1.10E-01	0.00E+00	0.00E+00	0.00E+00	1.10E-01	0.00E+00	0.00E+00
Components for reuse (CRU)	CRU (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported thermal energy (ETE)	ETE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported electricity energy (EEE)	EEE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 12 Environmental impacts of Nova V2 Charge Station: DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN07401)

Item	Unit	Total	MANUFACTURING STAGE		DISTRIBUTION	INSTALLATION	USE STAGE	END-OF-LIFE
			UPSTREAM MODULE	CORE MODULE				
Climate change	kg CO2 eq	2.35E+04	1.26E+04	1.40E+02	3.43E+02	2.30E+02	9.59E+03	5.35E+02
Climate change - Biogenic	kg CO2 eq	7.51E+02	1.89E+02	-1.57E+00	1.07E-01	2.10E+02	3.52E+02	4.07E-01
Climate change - Fossil	kg CO2 eq	2.27E+04	1.24E+04	1.41E+02	3.42E+02	1.92E+01	9.23E+03	5.34E+02
Climate change - Land use and land use change	kg CO2 eq	2.80E+01	2.08E+01	9.26E-02	5.46E-01	4.29E-02	6.09E+00	4.24E-01
Ozone depletion	kg CFC11 eq	6.41E-04	3.88E-04	8.78E-07	5.45E-06	3.21E-07	2.44E-04	1.93E-06
Acidification	mol H+ eq	2.84E+02	1.78E+02	7.18E-01	7.69E+00	1.02E-01	9.60E+01	9.67E-01
Eutrophication aquatic freshwater	kg P eq	2.56E+00	1.89E+00	3.15E-03	1.96E-03	2.05E-04	6.53E-01	6.72E-03
Eutrophication aquatic marine	kg N eq	2.93E+01	1.85E+01	1.46E-01	1.98E+00	4.52E-02	8.35E+00	2.51E-01
Eutrophication terrestrial	mol N eq	3.59E+02	2.25E+02	1.61E+00	2.19E+01	4.47E-01	1.07E+02	2.73E+00
Photochemical ozone formation	kg NMVOC eq	1.06E+02	6.62E+01	4.39E-01	6.04E+00	1.51E-01	3.20E+01	8.28E-01
Depletion of abiotic resources – minerals and metals	kg Sb eq	5.10E+00	4.06E+00	2.45E-04	5.49E-04	4.95E-05	1.04E+00	8.94E-04
Depletion of abiotic resources – fossil fuels	MJ	2.91E+05	1.55E+05	1.43E+03	4.40E+03	2.40E+02	1.27E+05	2.34E+03
Water use	m3	5.82E+03	3.57E+03	3.04E+01	1.45E+01	3.78E-01	2.17E+03	2.84E+01

Use of non-renewable primary energy excluding nonrenewable primary energy resources used as raw material (PENRE)	MJ	2.88E+05	1.56E+05	1.32E+05	8.04E+01	0.00E+00	0.00E+00	0.00E+00
Use of renewable primary energy excluding renewable primary energy resources used as raw material (PERE)	MJ	2.23E+04	2.23E+04	2.28E+01	1.43E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable primary energy resources used as raw material (PENRM)	MJ	1.16E+01	6.77E+00	4.85E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable primary energy resources used as raw material (PERM)	MJ	2.15E+01	0.00E+00	2.15E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT)	MJ	2.88E+05	1.55E+05	1.43E+03	4.41E+03	2.40E+02	1.27E+05	8.04E+01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)	MJ	2.24E+04	2.22E+04	1.56E+02	6.64E-01	4.14E+01	2.29E+00	1.43E+00
Net use of fresh water (FW)	m3	2.08E+02	1.20E+02	7.82E-01	5.87E-01	3.74E-02	8.43E+01	1.92E+00
Use of secondary materials (MS)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels (RSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels (NRSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hazardous waste disposed (HWD)	HWD (kg)	4.11E+02	1.48E+01	2.76E+00	7.68E-02	8.47E-01	3.18E+02	7.53E+01
Non-hazardous waste disposed (NHWD)	NHWD (kg)	5.75E+03	4.04E+03	1.43E+01	1.03E+02	8.89E+01	1.43E+03	6.72E+01
Radioactive waste disposed (RWD)	RWD (kg)	5.34E-01	2.79E-01	1.46E-03	6.55E-04	6.24E-05	2.48E-01	4.24E-03
Materials for energy recovery (MER)	MER (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling (MFR)	MFR (kg)	1.10E-01	0.00E+00	0.00E+00	0.00E+00	1.10E-01	0.00E+00	0.00E+00
Components for reuse (CRU)	CRU (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported thermal energy (ETE)	ETE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported electricity energy (EEE)	EEE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 13 Environmental impacts of Nova V2 Charge Station: DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN07402)

Item	Unit	Total	MANUFACTURING STAGE		DISTRIBUTION	INSTALLATION	USE STAGE	END-OF-LIFE
			UPSTREAM MODULE	CORE MODULE				

Climate change	kg CO2 eq	2.18E+04	1.27E+04	1.16E+02	3.62E+02	2.28E+02	7.84E+03	5.35E+02
Climate change - Biogenic	kg CO2 eq	5.97E+02	1.89E+02	-1.43E+00	-4.95E-02	2.10E+02	1.99E+02	4.05E-01
Climate change - Fossil	kg CO2 eq	2.12E+04	1.25E+04	1.17E+02	3.62E+02	1.72E+01	7.63E+03	5.34E+02
Climate change - Land use and land use change	kg CO2 eq	3.76E+01	2.10E+01	8.29E-02	2.37E-01	4.29E-02	1.58E+01	4.23E-01
Ozone depletion	kg CFC11 eq	5.42E-04	3.92E-04	8.34E-07	1.86E-05	3.20E-07	1.28E-04	1.93E-06
Acidification	mol H+ eq	2.96E+02	1.78E+02	5.89E-01	7.78E+00	1.02E-01	1.09E+02	9.65E-01
Eutrophication aquatic freshwater	kg P eq	2.79E+00	1.92E+00	2.63E-03	2.41E-03	2.04E-04	8.59E-01	6.70E-03
Eutrophication aquatic marine	kg N eq	2.97E+01	1.86E+01	1.20E-01	2.00E+00	4.50E-02	8.73E+00	2.50E-01
Eutrophication terrestrial	mol N eq	3.63E+02	2.26E+02	1.31E+00	2.21E+01	4.45E-01	1.11E+02	2.73E+00
Photochemical ozone formation	kg NMVOC eq	1.08E+02	6.65E+01	3.62E-01	6.05E+00	1.51E-01	3.45E+01	8.26E-01
Depletion of abiotic resources – minerals and metals	kg Sb eq	5.13E+00	4.09E+00	2.29E-04	6.07E-04	4.94E-05	1.04E+00	8.92E-04
Depletion of abiotic resources – fossil fuels	MJ	3.06E+05	1.55E+05	1.20E+03	4.73E+03	2.40E+02	1.42E+05	2.33E+03
Water use	m3	6.13E+03	3.56E+03	2.77E+01	1.63E+01	3.71E-01	2.50E+03	2.83E+01
Use of non-renewable primary energy excluding nonrenewable primary energy resources used as raw material (PENRE)	MJ	3.03E+05	1.55E+05	1.20E+03	4.73E+03	2.35E+02	1.41E+05	8.04E+01
Use of renewable primary energy excluding renewable primary energy resources used as raw material (PERE)	MJ	2.24E+04	2.22E+04	1.30E+02	6.62E-01	2.20E+01	2.29E+00	1.43E+00
Use of non-renewable primary energy resources used as raw material (PENRM)	MJ	1.16E+01	6.77E+00	0.00E+00	0.00E+00	4.85E+00	0.00E+00	0.00E+00
Use of renewable primary energy resources used as raw material (PERM)	MJ	2.15E+01	0.00E+00	0.00E+00	0.00E+00	2.15E+01	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT)	MJ	3.03E+05	1.55E+05	1.20E+03	4.73E+03	2.40E+02	1.41E+05	8.04E+01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)	MJ	2.24E+04	2.22E+04	1.30E+02	6.62E-01	4.35E+01	2.29E+00	1.43E+00
Net use of fresh water (FW)	m3	2.45E+02	1.20E+02	7.18E-01	5.26E-01	3.72E-02	1.22E+02	1.92E+00
Use of secondary materials (MS)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels (RSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels (NRSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Hazardous waste disposed (HWD)	HWD (kg)	3.42E+02	1.45E+01	2.75E+00	8.50E-02	8.33E-01	2.49E+02	7.52E+01
Non-hazardous waste disposed (NHWD)	NHWD (kg)	5.85E+03	4.04E+03	1.25E+01	9.22E+01	8.86E+01	1.55E+03	6.70E+01
Radioactive waste disposed (RWD)	RWD (kg)	1.14E+00	2.82E-01	1.21E-03	6.79E-03	6.23E-05	8.47E-01	4.24E-03
Materials for energy recovery (MER)	MER (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling (MFR)	MFR (kg)	1.10E-01	0.00E+00	0.00E+00	0.00E+00	1.10E-01	0.00E+00	0.00E+00
Components for reuse (CRU)	CRU (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported thermal energy (ETE)	ETE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported electricity energy (EEE)	EEE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 14 Environmental impacts of Nova V2 Charge Station: DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN04302F0005)

Item	Unit	Total	MANUFACTURING STAGE		DISTRIBUTION	INSTALLATION	USE STAGE	END-OF-LIFE
			UPSTREAM MODULE	CORE MODULE				
Climate change	kg CO2 eq	2.21E+04	1.30E+04	1.38E+02	3.43E+02	1.74E+02	7.84E+03	5.53E+02
Climate change - Biogenic	kg CO2 eq	5.56E+02	1.99E+02	-1.56E+00	1.07E-01	1.59E+02	1.99E+02	3.94E-01
Climate change - Fossil	kg CO2 eq	2.15E+04	1.28E+04	1.40E+02	3.42E+02	1.51E+01	7.63E+03	5.52E+02
Climate change - Land use and land use change	kg CO2 eq	3.80E+01	2.12E+01	9.19E-02	5.46E-01	3.24E-02	1.58E+01	4.32E-01
Ozone depletion	kg CFC11 eq	5.31E-04	3.95E-04	8.76E-07	5.45E-06	2.43E-07	1.28E-04	1.99E-06
Acidification	mol H+ eq	2.98E+02	1.80E+02	7.09E-01	7.69E+00	7.71E-02	1.09E+02	9.81E-01
Eutrophication aquatic freshwater	kg P eq	2.75E+00	1.88E+00	3.11E-03	1.96E-03	1.54E-04	8.59E-01	6.69E-03
Eutrophication aquatic marine	kg N eq	2.99E+01	1.87E+01	1.44E-01	1.98E+00	3.48E-02	8.73E+00	2.57E-01
Eutrophication terrestrial	mol N eq	3.65E+02	2.28E+02	1.59E+00	2.19E+01	3.37E-01	1.11E+02	2.80E+00
Photochemical ozone formation	kg NMVO C eq	1.09E+02	6.73E+01	4.33E-01	6.04E+00	1.15E-01	3.45E+01	8.50E-01
Depletion of abiotic resources – minerals and metals	kg Sb eq	5.02E+00	3.98E+00	2.43E-04	5.49E-04	3.74E-05	1.04E+00	9.15E-04
Depletion of abiotic resources – fossil fuels	MJ	3.09E+05	1.59E+05	1.42E+03	4.40E+03	1.81E+02	1.42E+05	2.37E+03

Water use	m3	6.19E+03	3.62E+03	3.02E+01	1.45E+01	3.24E-01	2.50E+03	2.88E+01
Use of non-renewable primary energy excluding nonrenewable primary energy resources used as raw material (PENRE)	MJ	3.07E+05	1.61E+05	1.46E+05	8.04E+01	0.00E+00	0.00E+00	0.00E+00
Use of renewable primary energy excluding renewable primary energy resources used as raw material (PERE)	MJ	2.33E+04	2.33E+04	2.23E+01	1.09E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable primary energy resources used as raw material (PENRM)	MJ	1.16E+01	6.77E+00	4.85E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable primary energy resources used as raw material (PERM)	MJ	2.15E+01	0.00E+00	2.15E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT)	MJ	3.07E+05	1.59E+05	1.42E+03	4.41E+03	1.81E+02	1.41E+05	8.04E+01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)	MJ	2.33E+04	2.32E+04	1.54E+02	6.66E-01	4.14E+01	1.73E+00	1.09E+00
Net use of fresh water (FW)	m3	2.47E+02	1.22E+02	7.77E-01	5.87E-01	2.94E-02	1.22E+02	1.89E+00
Use of secondary materials (MS)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels (RSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels (NRSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hazardous waste disposed (HWD)	HWD (kg)	3.42E+02	1.50E+01	2.76E+00	7.68E-02	6.41E-01	2.49E+02	7.46E+01
Non-hazardous waste disposed (NHWD)	NHWD (kg)	6.24E+03	4.44E+03	1.42E+01	1.03E+02	6.68E+01	1.55E+03	7.02E+01
Radioactive waste disposed (RWD)	RWD (kg)	1.14E+00	2.85E-01	1.44E-03	6.55E-04	4.72E-05	8.47E-01	4.21E-03
Materials for energy recovery (MER)	MER (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Material for recycling (MFR)	MFR (kg)	1.10E-01	0.00E+00	0.00E+00	0.00E+00	1.10E-01	0.00E+00	0.00E+00
Components for reuse (CRU)	CRU (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported thermal energy (ETE)	ETE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported electricity energy (EEE)	EEE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 15 Environmental impacts of Nova V2 Charge Station: DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN04302F0006)

Item	Unit	Total	MANUFACTURING STAGE		DISTRIBUTION	INSTALLATION	USE STAGE	END-OF-LIFE
			UPSTREAM MODULE	CORE MODULE				
Climate change	kg CO2 eq	2.21E+04	1.30E+04	1.42E+02	3.43E+02	1.74E+02	7.84E+03	5.56E+02
Climate change - Biogenic	kg CO2 eq	5.60E+02	2.02E+02	-1.58E+00	1.07E-01	1.59E+02	1.99E+02	3.99E-01
Climate change - Fossil	kg CO2 eq	2.15E+04	1.28E+04	1.43E+02	3.42E+02	1.51E+01	7.63E+03	5.56E+02
Climate change - Land use and land use change	kg CO2 eq	3.80E+01	2.11E+01	9.33E-02	5.46E-01	3.24E-02	1.58E+01	4.35E-01
Ozone depletion	kg CFC11 eq	5.27E-04	3.90E-04	8.82E-07	5.45E-06	2.43E-07	1.28E-04	2.00E-06
Acidification	mol H+ eq	2.97E+02	1.79E+02	7.28E-01	7.69E+00	7.71E-02	1.09E+02	9.89E-01
Eutrophication aquatic freshwater	kg P eq	2.75E+00	1.88E+00	3.19E-03	1.96E-03	1.54E-04	8.59E-01	6.76E-03
Eutrophication aquatic marine	kg N eq	2.98E+01	1.87E+01	1.48E-01	1.98E+00	3.48E-02	8.73E+00	2.59E-01
Eutrophication terrestrial	mol N eq	3.64E+02	2.27E+02	1.63E+00	2.19E+01	3.37E-01	1.11E+02	2.82E+00
Photochemical ozone formation	kg NMVOC eq	1.09E+02	6.70E+01	4.45E-01	6.04E+00	1.15E-01	3.45E+01	8.55E-01
Depletion of abiotic resources – minerals and metals	kg Sb eq	5.00E+00	3.96E+00	2.46E-04	5.49E-04	3.74E-05	1.04E+00	9.21E-04
Depletion of abiotic resources – fossil fuels	MJ	3.09E+05	1.59E+05	1.45E+03	4.40E+03	1.81E+02	1.42E+05	2.39E+03
Water use	m3	6.16E+03	3.59E+03	3.06E+01	1.45E+01	3.24E-01	2.50E+03	2.90E+01
Use of non-renewable primary energy excluding nonrenewable primary energy resources used as raw material (PENRE)	MJ	3.06E+05	1.60E+05	1.46E+05	8.04E+01	0.00E+00	0.00E+00	0.00E+00
Use of renewable primary energy excluding renewable primary energy resources used as raw material (PERE)	MJ	2.33E+04	2.33E+04	2.23E+01	1.09E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable primary energy resources used as raw material (PENRM)	MJ	1.16E+01	6.77E+00	4.85E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Use of renewable primary energy resources used as raw material (PERM)	MJ	2.15E+01	0.00E+00	2.15E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT)	MJ	3.06E+05	1.59E+05	1.45E+03	4.41E+03	1.81E+02	1.41E+05	8.04E+01	
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)	MJ	2.33E+04	2.31E+04	1.57E+02	6.66E-01	4.14E+01	1.73E+00	1.09E+00	
Net use of fresh water (FW)	m3	2.47E+02	1.21E+02	7.87E-01	5.87E-01	2.94E-02	1.22E+02	1.91E+00	
Use of secondary materials (MS)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Use of renewable secondary fuels (RSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Use of non-renewable secondary fuels (NRSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Hazardous waste disposed (HWD)	HWD (kg)	3.42E+02	1.48E+01	2.76E+00	7.68E-02	6.41E-01	2.49E+02	7.47E+01	
Non-hazardous waste disposed (NHWD)	NHWD (kg)	6.27E+03	4.46E+03	1.45E+01	1.03E+02	6.68E+01	1.55E+03	7.05E+01	
Radioactive waste disposed (RWD)	RWD (kg)	1.14E+00	2.83E-01	1.48E-03	6.55E-04	4.72E-05	8.47E-01	4.26E-03	
Materials for energy recovery (MER)	MER (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Material for recycling (MFR)	MFR (kg)	1.10E-01	0.00E+00	0.00E+00	0.00E+00	1.10E-01	0.00E+00	0.00E+00	
Components for reuse (CRU)	CRU (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Exported thermal energy (ETE)	ETE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Exported electricity energy (EEE)	EEE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

Table 16 Environmental impacts of Nova V2 Charge Station: DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN07201)

Item	Unit	Total	MANUFACTURING STAGE		DISTRIBUTION	INSTALLATION	USE STAGE	END-OF-LIFE
			UPSTREAM MODULE	CORE MODULE				
Climate change	kg CO2 eq	2.24E+04	1.33E+04	1.45E+02	3.43E+02	1.78E+02	7.84E+03	5.65E+02
Climate change - Biogenic	kg CO2 eq	5.61E+02	2.01E+02	-1.60E+00	1.07E-01	1.62E+02	1.99E+02	3.99E-01
Climate change - Fossil	kg CO2 eq	2.18E+04	1.31E+04	1.47E+02	3.42E+02	1.61E+01	7.63E+03	5.64E+02
Climate change - Land use and land use change	kg CO2 eq	3.85E+01	2.16E+01	9.47E-02	5.46E-01	3.27E-02	1.58E+01	4.41E-01

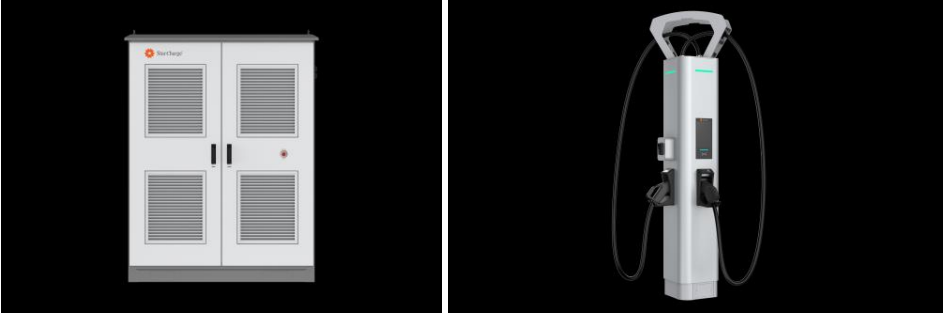
Ozone depletion	kg CFC11 eq	5.38E-04	4.02E-04	8.90E-07	5.45E-06	2.46E-07	1.28E-04	2.03E-06
Acidification	mol H+ eq	3.02E+02	1.84E+02	7.47E-01	7.69E+00	7.81E-02	1.09E+02	1.00E+00
Eutrophication aquatic freshwater	kg P eq	2.80E+00	1.93E+00	3.26E-03	1.96E-03	1.56E-04	8.59E-01	6.82E-03
Eutrophication aquatic marine	kg N eq	3.03E+01	1.92E+01	1.52E-01	1.98E+00	3.60E-02	8.73E+00	2.63E-01
Eutrophication terrestrial	mol N eq	3.71E+02	2.33E+02	1.67E+00	2.19E+01	3.42E-01	1.11E+02	2.86E+00
Photochemical ozone formation	kg NMVOC eq	1.11E+02	6.89E+01	4.56E-01	6.04E+00	1.16E-01	3.45E+01	8.67E-01
Depletion of abiotic resources – minerals and metals	kg Sb eq	5.15E+00	4.11E+00	2.48E-04	5.49E-04	3.78E-05	1.04E+00	9.33E-04
Depletion of abiotic resources – fossil fuels	MJ	3.13E+05	1.63E+05	1.49E+03	4.40E+03	1.83E+02	1.42E+05	2.42E+03
Water use	m3	6.29E+03	3.72E+03	3.10E+01	1.45E+01	3.67E-01	2.50E+03	2.93E+01
Use of non-renewable primary energy excluding nonrenewable primary energy resources used as raw material (PENRE)	MJ	3.11E+05	1.64E+05	1.46E+05	8.04E+01	0.00E+00	0.00E+00	0.00E+00
Use of renewable primary energy excluding renewable primary energy resources used as raw material (PERE)	MJ	2.38E+04	2.38E+04	2.23E+01	1.11E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable primary energy resources used as raw material (PENRM)	MJ	1.16E+01	6.77E+00	4.85E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable primary energy resources used as raw material (PERM)	MJ	2.15E+01	0.00E+00	2.15E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT)	MJ	3.11E+05	1.63E+05	1.49E+03	4.41E+03	1.83E+02	1.41E+05	8.04E+01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)	MJ	2.38E+04	2.36E+04	1.61E+02	6.70E-01	4.14E+01	1.75E+00	1.11E+00
Net use of fresh water (FW)	m3	2.51E+02	1.25E+02	7.97E-01	5.87E-01	3.09E-02	1.22E+02	1.93E+00
Use of secondary materials (MS)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Use of renewable secondary fuels (RSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels (NRSF)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hazardous waste disposed (HWD)	HWD (kg)	3.44E+02	1.53E+01	2.76E+00	7.68E-02	6.54E-01	2.49E+02	7.61E+01	
Non-hazardous waste disposed (NHWD)	NHWD (kg)	6.31E+03	4.51E+03	1.47E+01	1.03E+02	6.75E+01	1.55E+03	7.16E+01	
Radioactive waste disposed (RWD)	RWD (kg)	1.14E+00	2.91E-01	1.52E-03	6.55E-04	4.79E-05	8.47E-01	4.29E-03	
Materials for energy recovery (MER)	MER (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling (MFR)	MFR (kg)	1.10E-01	0.00E+00	0.00E+00	0.00E+00	1.10E-01	0.00E+00	0.00E+00	0.00E+00
Components for reuse (CRU)	CRU (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported thermal energy (ETE)	ETE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported electricity energy (EEE)	EEE (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

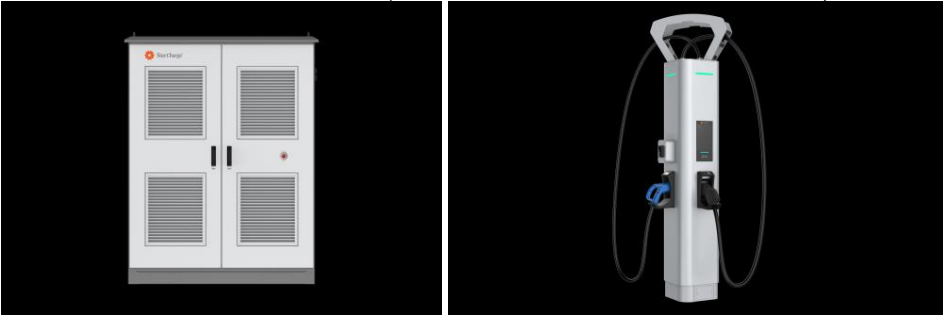
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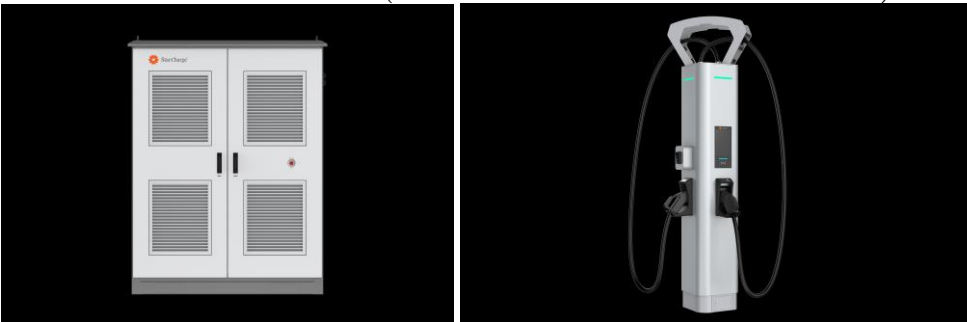
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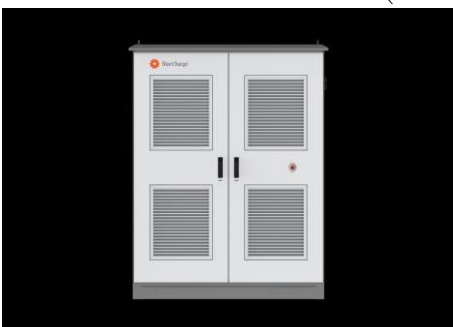
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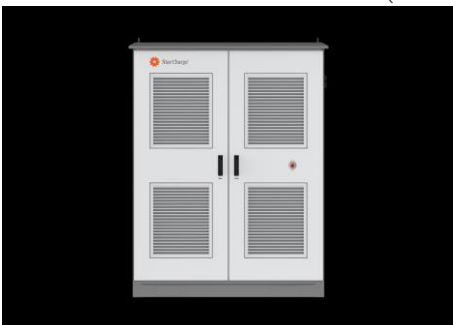
4. Nova V2 DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN07402)



5. Nova V2 DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN04302F0005)



6. Nova V2 DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN04302F0006)



7. Nova V2 DCST-EN-002-360-05 (DC3600EN0004F0001+DC3600EN07201)

