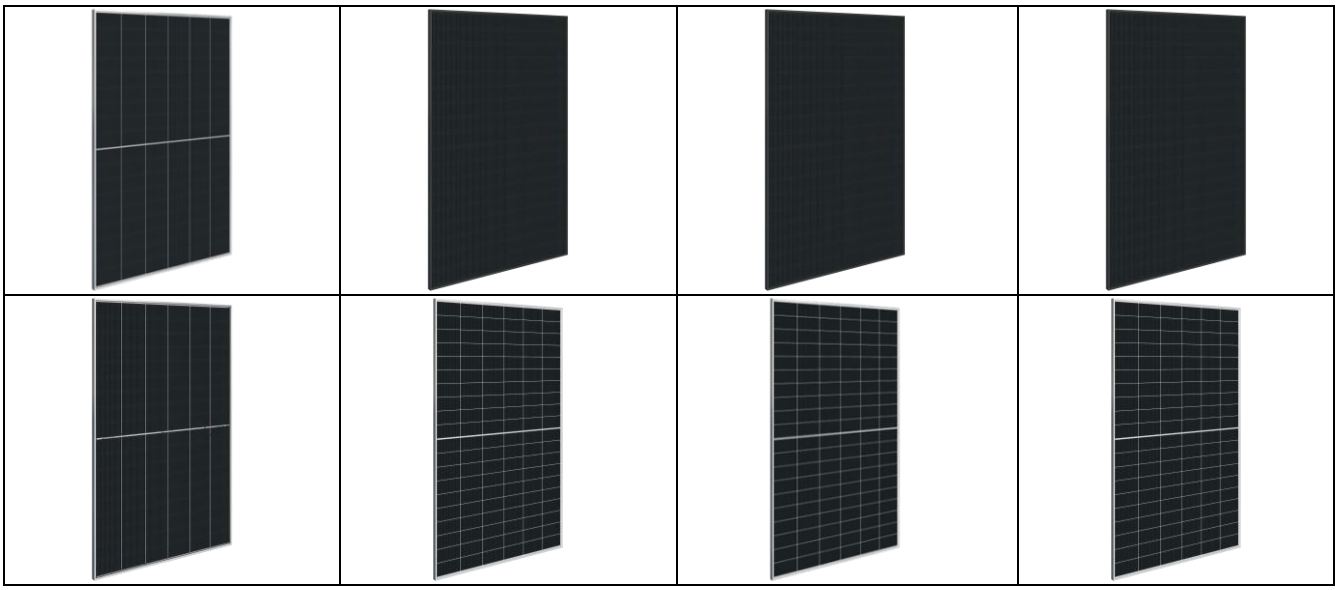
# Environmental Product Declaration

In accordance with ISO14025:2006 and EN15804:2012+A2:2019

## [Mono-crystalline Photovoltaic Module]



**Owner of the declaration:**
Chint New Energy Technology Co., Ltd.

**Product name:**
Mono-crystalline Photovoltaic module

**Functional unit:**
1 Wp

**Product category /PCR:**
[NPCR PART A: Construction products and services Version 2.0 & NPCR 029 Part B Version: 1.2]

**Program holder and publisher:**
The Norwegian EPD foundation

**Declaration number:**
NEPD-9805-9756

**Registration number:**
NEPD-9805-9756

**Issue date:** 22.04.2025

**Valid to:** 22.04.2030

The Norwegian
EPD Foundation

# General information

## Product:
Mono-crystalline Photovoltaic Module

(for specific models, please refer to the product description)

## Program operator:
The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Tlf: +47 23 08 80 00
e-mail: post@epd-norge.no

## Declaration number:
NEPD-9805-9756

## This declaration is based on Product Category Rules:
NPCR PART A: Construction products and services Version 2.0, 2021-03-24
NPCR 029 Part B for photovoltaic modules used in the building and construction industry, including production of cell, wafer, ingot block, solar grade silicon, solar substrates, solar superstrates and other solar grade semiconductor materials version 1.2, 2022-03-31

## Statement of liability:
The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer, life cycle assessment data and evidences.

## Declared unit:
1 piece of manufactured photovoltaic module

## Functional unit:
1 Wp of manufactured photovoltaic module, from cradle-to-grave, with activities needed for a study period for a defined reference service life (⩾80% of the labelled power output)

## Verification:
Independent verification of the declaration and data, according to ISO14025:2010

internal ☐ external☑

Noh-hyun Lim
Independent verifier approved by EPD Norway

## Owner of the declaration:
Chint New Energy Technology Co., Ltd.
Contact person: Gan Chen
Phone: +86 571 5603 2361
e-mail: gan.chen1@Astronergy.com

## Manufacturer:
Chint New Energy Technology Co., Ltd.

## Place of production:
Chint New Energy Technology (Fuyang) Co., Ltd.
Address: No.177, TongDeng Road, Lingqiao Town, Fuyang District, Hangzhou City, Zhejiang Province, P.R. China

Chint New Energy Technology Co., Ltd.
Address: NO.1 Jisheng Road, Jianshan New Zone, Haining City, Zhejiang Province, P.R. China

## Management system:
ISO9001, ISO14001, ISO45001

## Organisation no:
913304813502083466

## Issue date:
22.04.2025

## Valid to:
22.04.2030

## Year of study:
2023.9.1-2024.8.31

## Comparability:
EPD of construction products may not be able to compare if they do not comply with EN 15804 and are seen in a building context.

## The EPD has been worked out by:
TÜV Rheinland (Guangdong) Ltd.

Janice Ji

Approved

Manager of EPD Norway

# Product

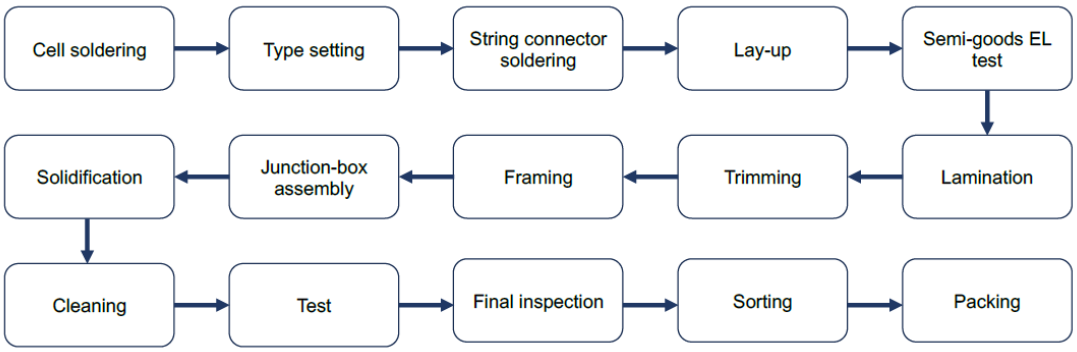
## Product description:

This is an EPD for multiple products manufactured in two factories comes from one manufacturer, please refer to the following table below for specific details. The deviation for GWP-total (A1-A3) are within +/-10% and CHSM54RNs(DG)(BLH)/F-BH manufactured in Chint New Energy Technology Co., Ltd. accounts for the largest share of production volume, therefore, CHSM54RNs(DG)(BLH)/F-BH manufactured in Chint New Energy Technology Co., Ltd. was selected as the representative product for declare in this EPD. The LCA results of other products can be found in the additional requirements part.

| Products | Factories |
|---|---|
| CHSM54RNs(BLH)-HC<br>CHSM54RNs(DG)(BLH)/F-BH<br>CHSM54RNs(DG)/F-BH<br>CHSM54RNs(DGT)(BLH)/F-BH<br>CHSM54RNs-HC<br>CHSM60RNs(DG)(BLH)/F-BH<br>CHSM60RNs(DG)/F-BH<br>CHSM60RNs(DGT)(BLH)/F-BH | • Chint New Energy Technology (Fuyang) Co., Ltd. No.177, TongDeng Road, Lingqiao Town, Fuyang District, Hangzhou City, Zhejiang Province, P.R. China<br>• Chint New Energy Technology Co., Ltd. NO.1 Jisheng Road, Jianshan New Zone, Haining City, Zhejiang Province, P.R. China |

Solar PV modules (also known as solar panels) are the core part of solar power generation systems, the function is to convert solar energy into electrical energy. The photovoltaic modules in this EPD employ Astronergy's self-developed n-type TOPCon 4.0 technology, combined with ZBB technology, achieving high power, high efficiency, high reliability, and easy to install and transport. Suitable for Residential, C&I Distributed Power Stations Moderate size design, C&I and residential application scenarios.

The following diagram describes the main production processes of PV module:




Step 1: Cell soldering

Cells prepared on the feed port are heated by infrared tubes. Transmit the heat to ribbons to fusing the stannum on the cells.

Step 2: Typesetting/ soldering/ lay up

Lay up glass, EVA, cell strings automatically, use tape to fix the cell strings, solder cross connectors to form a circuitry, meanwhile lay up EVA, back sheet, paste the SN label. At last record information into AMES system.

Step 3: Semi-goods EL Test

Scan SN label and take photos automatically. Operators inspect the EL pictures according the EL standard. AI intelligent judgment.

Step 4: Lamination

The semi-goods flow to laminator automatically.

Step 5: Trimming

Trimming the edge of semi-goods automatically to ensure the edge is smooth.

Step 6: Framing

Put Aluminum rails on the feed port, inject silicone gel into the groove. Then mechanical arm grabs glued frames and compresses to the module automatically.

Step 7: Junction-box Assembly

Fix junction box to glue machine, glue silicone to cover the bottom of J-box. Its appearance should be smooth. Fill the AB gel to the J-Box. After solidifying it can protect the metal component from the humidity to ensure electrical function.

Step 8: Solidification

The modules are placed on the conveyor by mechanical arm, and then transferred into the solidification room.

Step 9: Cleaning

Operators use 99% industrial alcohol to clean the module. And assemble the J-Box lid.

Step 10: Test

Simulate outside light, guarantee the consistency of result under a series of standard condition. Use xenon light as source, and the light shapes as pulse to decrease the power loss as much as possible. Specific data is pasted on the label of back sheet. Utilize electroluminescence technology to detect a number of defects, such as micro cracks, grain boundaries, broken contacts and shunts.

Step11: Final Inspection

Modules enter final inspection where inspectors check for visual defects, EL pictures and related module size and so on. AI intelligent assisted judgment.

Step 12: Sorting

According to different power, currents, colors and ranks, modules are distinguished automatically.

Step 13: Packing

Modules which have passed the final inspection are transported to packing area, each module of pallets turns over of 90° and 180° in order, and then cover the box, strap and wrap automatically. Present packing type is vertical.

Finally, the packaged modules will be sent to the warehouse.

## Product specification:

The PV modules comply with the requirement of IEC 61215 :2016 series and IEC 61730:2016 series test standards.

Materials compositions and technical data for the declared product are shown below.

| Materials | CHSM54RNs(DG)(BLH)/F-BH | |
|---|---|---|
| | kg/FU | % |
| Photovoltaic cell | 1.17E-03 | 2.13% |
| Interconnector | 2.31E-04 | 0.42% |
| Front glass | 2.22E-02 | 40.35% |
| Back glass | 2.22E-02 | 40.35% |
| EVA film | 4.13E-03 | 7.51% |
| Busbar | 9.23E-05 | 0.17% |
| Frame | 4.00E-03 | 7.27% |
| Junction box | 2.47E-04 | 0.45% |
| Potting adhesive | 7.53E-04 | 1.37% |
| TOTAL | 5.50E-02 | 100.00% |

| Packaging Materials | CHSM54RNs(DG)(BLH)/F-BH | |
|---|---|---|
| | kg/FU | % |
| PET label/tape | 4.50E-05 | 1.82% |
| Carbon fiber | 1.59E-07 | 0.01% |
| Corrugated board | 5.08E-04 | 20.53% |
| PE film | 4.17E-05 | 1.69% |
| packing strip (PET) | 9.84E-05 | 3.98% |
| plywood pallet | 1.78E-03 | 71.97% |
| TOTAL | 2.47E-03 | 100.00% |

## Technical data:

| Technical parameters | CHSM54RNs(DG)(BLH)/F-BH |
|---|---|

| | |
|---|---|
| Power output range (Wp) | 440~460 |
| Applied nominal Watt (Wp) | 450 |
| Module Area[1] (m²) | 2.00 |
| Converting factor (Wp/m2) | 225 |
| Dimensions[2] (mm³) | 1762*1134*30 |
| Weight excluding packaging (kg/pcs) | 24.8 |
| Weight excluding packaging (kg/FU) | 5.50E-02 |
| Weight including packaging (kg/pcs) | 25.9 |
| Weight including packaging (kg/FU) | 5.76E-02 |
| Module efficiency (%) | 22.0~23.0 |
| First year degradation | 1% |
| Annual degradation | 0.40% |
| Number of cells | 108 (6*18) |
| Type of technology | n-type mono-crystalline |

### Market:
Europe

### Reference service life, product:
The reference service life is 25 years (>80% of the labelled power output) according to the PCR since no third-party report is available currently.

### Type of EPD
Cradle-to-grave including A1-A3, A4, A5, B2, C1-C4 and module D.

## LCA: Calculation rules

### Declared unit:
1 pcs of manufactured photovoltaic module

### Functional unit:
1 Wp of manufactured photovoltaic module, from cradle-to-grave, with activities needed for a study period for a defined reference service life (≥80% of the labelled power output).

### Cut-off criteria:
Apart from some consumables like filter cotton, lubricating oil, cleaning agents, etc., with quite tiny mass have been cut-off, all available materials and energy are properly modelled. In cases no matching life cycle inventories are available to represent a flow, proxy data have been applied based on conservative assumptions regarding environmental impacts. Some steps/stages are not included in the system boundary for the reason that the elements are considered irrelevant or can be omitted according to the PCR, like the production and disposal of the infrastructure and capital equipment (buildings, machines, transport media, roads, etc.) during products manufacturing, installation, and maintenance …

### Allocation:

[1] including the frame
[2] including the frame

The allocation is made in accordance with the provisions of EN 15804 and Core PCR. Allocation refers to the partitioning of input or output flows of a process or a product system between the product systems under study and one or more other product systems.

There is no co-product generated during the manufacturing process, the allocation of co-product is not applicable in this LCA study.

The related factories may produce different models of PV modules, allocation of the inventory data is needed. For A3 manufacturing stage of each factory, the allocation principle is same. The energy and water consumption and waste generation are allocated by production volume ratio (pcs) since the assembly process of PV modules is basically the same.

The allocation strategy for the EoL process per PCR follows the same strategy listed in the EN15804. Thus, the "cut-off" strategy is applied. This scenario allocates the entire environmental impacts of waste treatment procedures (from deconstruction to the waste processing) to the producer. The recycled materials, on the other hand, are burden-free. An important note is that when materials have reached a so-called "end-of-waste" state, the coverage of the waste processing is thus terminated. Any inputs/flows related to refine gross recycled materials for actual applications are beyond the product system boundary and is accounted in Module D.

## Key Assumptions:

Silicon, ingot, wafer and PV cell processing are sourced from IEA PVPS Task 12, 2020 report for the Chinese market.

## Data quality:

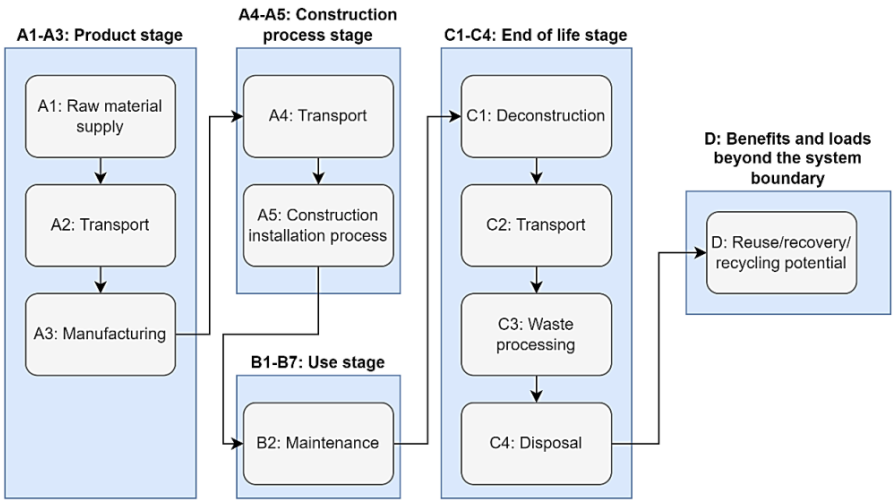
The inventory is based on the collection of measured data in the Chint Astronergy's manufacturing plants from 2023-09-01 to 2024-08-31. A high accuracy and quality are expected for specific data. Missing data are completed by data from secondary database. Cell, wafer and ingot production are sourced from IEA PVPS Task 12, 2020 report. Consistency checks are performed. Data quality of the main contributors is improved as far as possible. Generic data related to the life cycle impacts of the material or energy flows that enter and leave the production system is sourced from Ecoinvent 3.10 database.

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

| Product stage | | | Installation stage | | Use stage | | | | | | | End of life stage | | | | Benefits & loads beyond system boundary |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Raw materials | Transport | Manufacturing | Transport | Installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential |
| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| X | X | X | X | X | MNR | X | MNR | MNR | MNR | MNR | MNR | X | X | X | X | X |

## System boundary:

The study is a cradle to grave analysis from the extraction of raw materials up to the decommission of the product, including raw materials acquisition, transportation, manufacturing, delivery, installation, maintenance and waste disposal for end-of-life, benefits and loads after end-of-life.




The system boundary considered in this LCA study is “cradle to grave with options (A1-A3 + A4 + A5 + B2 + C + D)” according the NPCR 029 Part B v1.2.

# LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

## Transport from production place to Installation site/user (A4)

| Transport from production place to Installation site/user (A4) | Capacity utilisation (incl. return) % | Distance (km) | Fuel/Energy consumption | Unit | Value |
|---|---|---|---|---|---|
| Lorry, EURO5, 16- 32 metric ton_RoW | 36.7% | 158.3 | Diesel | tkm/kg | 0.1583 |
| Container ship | 50% | 19396 | Heavy oil | tkm/kg | 19.396 |
| Lorry, EURO5, 16- 32 metric ton_RER | 36.7% | 800 | Diesel | tkm/kg | 0.8 |

The distribution scenario(A4) is based on the market plan, the target market is Europe. The product is firstly transported to Ningbo Port with a transportation distance of 158.3km by lorry, then depart from Ningbo Port to Rotterdam Port by 19396km through the container ship. After that, the product is unloaded to the storage site by a distance of 300km assuming the capital city of Amsterdam. Finally, the distance between the storage site to the final consumers is assumed to be 500km according to the NPCR 029 Part B v1.2.

For road transportation, lorry of EURO5, 16-32 metric ton is used for modelling, while container ship is used for sea transportaion.

## Installation (A5)

| | Unit | Value |
|---|---|---|
| Water consumption | $m^3$/FU | - |
| Electricity consumption | kWh/FU | 6.32E-5 |
| Other energy carriers : Diesel | MJ/FU | 1.35E-2 |
| Material loss | Kg/FU | - |
| Output materials for waste treatment | Kg/FU | 2.47E-03 |

According to NPCR 029 Part B version 1.2, mounting structures and electrical components like cables and inverts are not considered in this stage, energy and fuel consumption for installation and treatment of waste packaging materials are included in this stage. The packaging materials are mainly wooden pallet, paper, and plastic. Among them, wooden pallet is considered to be directly recycled, for paper and plastic, are analysed according to reference : paper (8%Incineration, 10%landfill, 82% recycle); plastic (39.3%Incineration, 18.5%landfill, 42.2% recycle).

## Use (B1)

There's no material or energy inputs, and emissions during the use phase (B1) of the PV module.

## Maintenance (B2)/Repair (B3)

| | Unit | Value |
|---|---|---|
| Water consumption | kg/FU | 1.01E+00 |

The water consumed for cleaning PV modules is considered in maintenance (B2). The PV module is assumed to be cleaned once per month with an application rate of 0.76L water per $m^2$ PV panel according to the reference.

## Replacement (B4)/Refurbishment (B5)

It is assumed that the PV module itself does not require replacement and refurbishment during the RSL.

## Operational energy (B6) and water consumption (B7)

According the NPCR 029 Part B v1.2, PV module does not require operational energy nor water generally.

To calculate the expected energy production over the lifetime of the panels, the following formula may be used:

$$E_1 = S_{\text{rad}} * A * y * PR * (1 - \text{deg})$$

Where:

$E_1$ = Energy produced in the first year of operation, kWh/year

$S_{\text{rad}}$ = Site specific annual average solar radiation on module (shadings not included), kWh/kWp/year. The annual radiation must take into consideration the specific inclination (slope, tilt) and orientation.

A = Area of module, $m^2$.

y = Module yield: electrical power, kWp for standard test conditions (STC) of the module divided by the area of the module.

STC: The ratio is given for standard test conditions: irradiance 1000 W/$m^2$, cell temperature 25 °C, wind speed 1 m/s, AM1.5.

PR = Performance ratio, coefficient for losses. Site specific performance ratio can be modelled with PV simulation software tools, such as PVSYST or similar.

Energy production second year of operation:

$$E_2 = E_1 * (1 - \text{deg})$$

Energy production n year of operation:

$$E_n = E_1 * (1 - \text{deg})^{n-1}$$

Energy production over reference service life of module, assuming linear annual degradation:

$$E_{\text{RSL}} = E_1 * (1 + \sum_{n=1}^{RSL-1}(1 - \text{deg})^n)$$

## End of Life (C1, C2, C3, C4)

| | Unit | CHSM54RNs(DG)(BLH)/F-BH |
|---|---|---|
| Hazardous waste disposed | kg/FU | - |
| Collected as mixed construction waste[3] | kg/FU | 4.68E-02 |
| Reuse | kg/FU | - |
| Recycling | kg/FU | 3.62E-02 |
| To landfill[4] | kg/FU | 6.30E-03 |
| To incineration | kg/FU | 4.30E-03 |

De-construction (C1) of the PV module assumes the same energy and fuel consumption as Installation stage (A5). According to NPCR 029 Part B version 1.2, 50km is set as the transportation distance from consturction site to waste treatment site (C2). For the C3 phase, since there is lack of existing data of recycling rate for PV module, this study refers to legal requirements issued by Waste Electrical and Electronic Equipment (WEEE). In 2012/19/EU-Article 11 & ANNEX V, the required collection rate for waste PV module is 85%. Therefore, 15% of waste PV module ends up with waste disposal through landfill. A specific electricity 0.0556kWh/kg and 0.0324MJ/kg diesel consumption is referenced to disassemble the collected PV modules. The waste treatment scenarios for dissembled PV modules is shown the following table.

| PV components | Materials | Recycling | Landfill | Incineration |
|---|---|---|---|---|
| PV cells | Silicon | 80% | 20% | 0% |
| | Silver bar line | 90% | 10% | 0% |
| | other | 0% | 100% | 0% |
| Solar glass | Glass | 85% | 15% | 0% |
| PET | PET | 0% | 0% | 100% |
| Aluminium Frame | Aluminium alloy | 94% | 6% | 0% |
| Interconnection and Busbar | Copper | 63% | 37% | 0% |
| | Pb | 93% | 7% | 0% |
| | Tin | 90% | 10% | 0% |
| Junction box | Plastics | 0% | 0% | 100% |
| | Diode | 0% | 0% | 100% |
| | Copper | 63% | 37% | 0% |
| | Rubber | 0% | 0% | 100% |
| EVA | EVA | 0% | 0% | 100% |
| Chemicals | Adhesive | 0% | 0% | 100% |

## Transport to waste processing (C2)

| Transport to waste processing (C2) | Capacity utilisation (incl. return) % | Distance (km) | Fuel/Energy consumption | Unit | Value |
|---|---|---|---|---|---|
| Lorry, EURO5, 16- 32 metric ton_RER | 36.7% | 50 | Diesel | tkm/kg | 0.05 |

## Benefits and loads beyond the system boundaries (D)

| Benefits and loads beyond the system boundaries (D) | Unit | CHSM54RNs(DG)(BLH)/F-BH |
|---|---|---|
| Silicon, metallurgical grade {GLO}\| market for silicon, metallurgical grade \| Cut-off, U | kg/FU | 6.73E-04 |

[3] excluding the 15% uncollected waste PV module
[4] excluding the 15% uncollected waste PV module

| | | |
|---|---|---|
| Silver {GLO}\| market for silver \| Cut-off, U | kg/FU | 7.07E-06 |
| Glass cullet {RER}\| market for glass cullet, soted \| Cut-off, U | kg/FU | 3.21E-02 |
| Aluminium alloy, AlMg3 {RER}\| market for aluminium alloy, AlMg3 \| Cut-off, U | kg/FU | 3.20E-03 |
| Copper, anode {GLO}\| market for copper, anode \| Cut-off, U | kg/FU | 1.77E-04 |
| Lead {GLO}\| market for lead concentrate \| Cut-off, U | kg/FU | 2.05E-05 |
| Tin {GLO}\| market for tin concentrate \| Cut-off, U | kg/FU | 2.97E-05 |
| Electricity, high voltage {ENTSO-E}\| market group for electricity, high voltage \| Cut-off, U | MJ/FU | 1.93E-02 |
| Heat, central or small-scale, other than natural gas {RER}\| market for heat, central or small-scale, other than natural gas \| Cut-off, U | MJ/FU | 3.74E-02 |

# LCA: Results

The LCA results show the environmental impacts and resource input and output flows calculated according to EN 15804:2012+A2:2019 and using the LCA software SimaPro 9.6.0.1. The results are shown per functional unit (1Wp) and declared unit (1 pcs)

## Core environmental impact indicators (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.73E-01 | 2.21E-02 | 1.73E-03 | 3.11E-04 | 1.37E-03 | 5.34E-04 | 1.04E-03 | 1.32E-02 | -4.23E-02 |
| GWP-fossil | kg CO2 eq | 3.71E-01 | 2.21E-02 | 1.57E-03 | 3.05E-04 | 1.37E-03 | 5.33E-04 | 1.01E-03 | 1.32E-02 | -4.17E-02 |
| GWP-biogenic | kg CO2 eq | 1.17E-03 | 2.53E-06 | 1.57E-04 | 6.09E-06 | 9.69E-07 | 3.65E-07 | 3.40E-05 | 8.95E-07 | -5.52E-04 |
| GWP–LUUC | kg CO2 eq | 2.61E-04 | 9.62E-06 | 1.93E-07 | 5.85E-07 | 1.84E-07 | 1.74E-07 | 2.76E-06 | 6.89E-08 | -7.35E-05 |
| ODP | kg CFC11 eq | 6.78E-09 | 3.66E-10 | 2.16E-11 | 4.37E-12 | 2.10E-11 | 1.06E-11 | 1.85E-11 | 5.24E-12 | -3.19E-10 |
| AP | molc H+ eq | 2.36E-03 | 3.70E-04 | 1.24E-05 | 1.63E-06 | 1.23E-05 | 1.67E-06 | 5.60E-06 | 3.60E-06 | -3.58E-04 |
| EP-freshwater | kg P eq | 1.31E-04 | 1.10E-06 | 6.04E-08 | 1.85E-07 | 5.80E-08 | 3.56E-08 | 7.75E-07 | 1.11E-07 | -3.05E-05 |
| EP-marine | kg N eq | 6.63E-04 | 9.49E-05 | 5.85E-06 | 3.13E-07 | 5.66E-06 | 5.62E-07 | 1.45E-06 | 2.34E-06 | -5.56E-05 |
| EP-terrestrial | molc N eq | 5.06E-03 | 1.05E-03 | 6.25E-05 | 3.02E-06 | 6.19E-05 | 6.11E-06 | 1.41E-05 | 1.86E-05 | -6.18E-04 |
| POCP | kg NMVOC eq | 1.47E-03 | 3.04E-04 | 1.87E-05 | 9.99E-07 | 1.85E-05 | 2.61E-06 | 4.57E-06 | 4.78E-06 | -1.79E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.22E-05 | 4.53E-08 | 6.16E-10 | 1.66E-09 | 5.26E-10 | 1.70E-09 | 1.96E-09 | 5.45E-10 | -7.94E-06 |
| ADP-fossil[1] | MJ | 4.34E+00 | 2.90E-01 | 1.85E-02 | 5.43E-03 | 1.81E-02 | 7.49E-03 | 2.22E-02 | 3.47E-03 | -4.70E-01 |
| WDP[1] | m³ | 8.84E-02 | 9.48E-04 | 5.15E-05 | 4.35E-02 | 4.36E-05 | 3.07E-05 | 2.29E-04 | 1.99E-04 | -9.11E-03 |

***GWP-total:*** *Global Warming Potential;* ***GWP-fossil:*** *Global Warming Potential fossil fuels;* ***GWP-biogenic:*** *Global Warming Potential biogenic;* ***GWP-LULUC:*** *Global Warming Potential land use and land use change;* ***ODP:*** *Depletion potential of the stratospheric ozone layer;* ***AP:*** *Acidification potential, Accumulated Exceedance;* ***EP-freshwater:*** *Eutrophication potential, fraction of nutrients reaching freshwater end compartment; See "additional Norwegian requirements" for indicator given as PO4 eq.* ***EP-marine:*** *Eutrophication potential, fraction of nutrients reaching freshwater end compartment;* ***EP-terrestrial:*** *Eutrophication potential, Accumulated Exceedance;* ***POCP****: Formation potential of tropospheric ozone;* ***ADP-M&M****: Abiotic depletion potential for non-fossil resources (minerals and metals);* ***ADP-fossil:*** *Abiotic depletion potential for fossil resources;* ***WDP:*** *Water deprivation potential, deprivation weighted water consumption*

Reading example: 9,0 E-03 = 9,0*10-3 = 0,009

## Additional environmental impact indicators (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidence | 2.91E-08 | 1.18E-09 | 3.48E-10 | 1.85E-11 | 3.46E-10 | 4.19E-11 | 6.13E-11 | 2.03E-11 | -4.76E-09 |
| IRP[2] | kBq U235 eq. | 2.53E-02 | 2.45E-04 | 2.16E-05 | 1.11E-04 | 2.10E-05 | 9.60E-06 | 5.39E-04 | 4.11E-06 | -3.41E-03 |
| ETP-fw[1] | CTUe | 2.96E+00 | 6.42E-02 | 3.25E-03 | 4.04E-03 | 2.56E-03 | 2.01E-03 | 2.95E-03 | 1.51E-01 | -7.07E-01 |
| HTP-c[1] | CTUh | 1.02E-09 | 1.20E-10 | 5.54E-12 | 1.04E-11 | 5.31E-12 | 3.72E-12 | 2.47E-12 | 3.41E-12 | -6.31E-10 |
| HTP-nc[1] | CTUh | 5.23E-09 | 1.27E-10 | 3.38E-12 | 1.70E-11 | 2.34E-12 | 4.67E-12 | 6.73E-12 | 2.98E-10 | -1.46E-09 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SQP[1] | Dimension less | 1.68E+00 | 1.00E-01 | 1.59E-03 | 1.28E-03 | 1.33E-03 | 4.45E-03 | 6.08E-03 | 2.57E-03 | -2.31E-01 |

***PM:*** *Particulate matter emissions;* ***IRP:*** *Ionising radiation, human health;* ***ETP-fw:*** *Ecotoxicity (freshwater);* ***HTP-c:*** *Human toxicity, cancer effects;* ***HTP-nc:*** *Human toxicity, non-cancer effects;* ***SQP:*** *Land use related impacts / soil quality*

[1] The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

[2] This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

## Resource use (per functional unit – 1Wp)

| Parameter | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| RPEE | MJ | 4.32E-01 | 3.37E-03 | 2.30E-04 | 9.46E-04 | 2.21E-04 | 1.23E-04 | 4.80E-03 | 8.44E-05 | -7.65E-02 |
| RPEM | MJ | 3.19E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.64E-01 | 3.37E-03 | 2.30E-04 | 9.46E-04 | 2.21E-04 | 1.23E-04 | 4.80E-03 | 8.44E-05 | -7.65E-02 |
| NRPE | MJ | 4.33E+00 | 2.90E-01 | 1.85E-02 | 5.43E-03 | 1.81E-02 | 7.49E-03 | 2.22E-02 | 3.47E-03 | -4.70E-01 |
| NRPM | MJ | 9.90E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.34E+00 | 2.90E-01 | 1.85E-02 | 5.43E-03 | 1.81E-02 | 7.49E-03 | 2.22E-02 | 3.47E-03 | -4.70E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.50E-03 | 3.07E-05 | 1.59E-06 | 1.02E-03 | 1.68E-06 | 1.02E-06 | 1.86E-05 | 6.27E-06 | -3.86E-04 |

***RPEE*** *Renewable primary energy resources used as energy carrier;* ***RPEM*** *Renewable primary energy resources used as raw materials;* ***TPE*** *Total use of renewable primary energy resources;* ***NRPE*** *Nonrenewable primary energy resources used as energy carrier;* ***NRPM*** *Nonrenewable primary energy resources used as materials;* ***TRPE*** *Total use of non-renewable primary energy resources;* ***SM*** *Use of secondary materials;* ***RSF*** *Use of renewable secondary fuels;* ***NRSF*** *Use of non-renewable secondary fuels;* ***W*** *Use of net fresh water.*

## End of life – Waste (per functional unit – 1Wp)

| Parameter | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| HW | kg | 6.71E-04 | 5.66E-06 | 2.12E-06 | 3.81E-07 | 1.77E-07 | 1.85E-07 | 6.78E-07 | 1.90E-04 | -1.91E-03 |
| NHW | kg | 2.17E-02 | 7.33E-03 | 1.15E-04 | 4.40E-05 | 1.18E-05 | 3.55E-04 | 8.30E-03 | 6.42E-03 | -2.60E-03 |
| RW | kg | 6.25E-06 | 6.04E-08 | 5.47E-09 | 2.85E-08 | 5.32E-09 | 2.39E-09 | 1.40E-07 | 1.01E-09 | -8.59E-07 |

***HW*** *Hazardous waste disposed;* ***NHW*** *Non-hazardous waste disposed;* ***RW*** *Radioactive waste disposed.*

## End of life – output flow (per functional unit – 1Wp)

| Parameter | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| CR | kg | 0.00E+00 | 0.00E+00 | 1.78E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.95E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.62E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 1.13E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.30E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 3.67E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.93E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 7.21E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.74E-02 | 0.00E+00 | 0.00E+00 |

***CR*** *Components for reuse;* ***MR*** *Materials for recycling;* ***MER*** *Materials for energy recovery;* ***EEE*** *Exported electric energy;* ***ETE*** *Exported thermal energy.*

## Core environmental impact indicators (per declared unit – 1 pcs)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 1.68E+02 | 9.95E+00 | 7.79E-01 | 1.40E-01 | 6.17E-01 | 2.40E-01 | 4.68E-01 | 5.94E+00 | -1.90E+01 |
| GWP-fossil | kg CO2 eq | 1.67E+02 | 9.95E+00 | 7.07E-01 | 1.37E-01 | 6.17E-01 | 2.40E-01 | 4.55E-01 | 5.94E+00 | -1.88E+01 |
| GWP-biogenic | kg CO2 eq | 5.27E-01 | 1.14E-03 | 7.07E-02 | 2.74E-03 | 4.36E-04 | 1.64E-04 | 1.53E-02 | 4.03E-04 | -2.48E-01 |
| GWP–LUUC | kg CO2 eq | 1.17E-01 | 4.33E-03 | 8.69E-05 | 2.63E-04 | 8.28E-05 | 7.83E-05 | 1.24E-03 | 3.10E-05 | -3.31E-02 |
| ODP | kg CFC11 eq | 3.05E-06 | 1.65E-07 | 9.72E-09 | 1.97E-09 | 9.45E-09 | 4.77E-09 | 8.33E-09 | 2.36E-09 | -1.44E-07 |
| AP | molc H+ eq | 1.06E+00 | 1.67E-01 | 5.58E-03 | 7.34E-04 | 5.54E-03 | 7.52E-04 | 2.52E-03 | 1.62E-03 | -1.61E-01 |
| EP-freshwater | kg P eq | 5.90E-02 | 4.95E-04 | 2.72E-05 | 8.33E-05 | 2.61E-05 | 1.60E-05 | 3.49E-04 | 5.00E-05 | -1.37E-02 |
| EP-marine | kg N eq | 2.98E-01 | 4.27E-02 | 2.63E-03 | 1.41E-04 | 2.55E-03 | 2.53E-04 | 6.53E-04 | 1.05E-03 | -2.50E-02 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| EP-terrestrial | molc N eq | 2.28E+00 | 4.73E-01 | 2.81E-02 | 1.36E-03 | 2.79E-02 | 2.75E-03 | 6.35E-03 | 8.37E-03 | -2.78E-01 |
| POCP | kg NMVOC eq | 6.62E-01 | 1.37E-01 | 8.42E-03 | 4.50E-04 | 8.33E-03 | 1.17E-03 | 2.06E-03 | 2.15E-03 | -8.06E-02 |
| ADP-M&M[1] | kg Sb-Eq | 5.49E-03 | 2.04E-05 | 2.77E-07 | 7.47E-07 | 2.37E-07 | 7.65E-07 | 8.82E-07 | 2.45E-07 | -3.57E-03 |
| ADP-fossil[1] | MJ | 1.95E+03 | 1.31E+02 | 8.33E+00 | 2.44E+00 | 8.15E+00 | 3.37E+00 | 9.99E+00 | 1.56E+00 | -2.12E+02 |
| WDP[1] | m³ | 3.98E+01 | 4.27E-01 | 2.32E-02 | 1.96E+01 | 1.96E-02 | 1.38E-02 | 1.03E-01 | 8.96E-02 | -4.10E+00 |

***GWP-total:*** *Global Warming Potential;* ***GWP-fossil:*** *Global Warming Potential fossil fuels;* ***GWP-biogenic:*** *Global Warming Potential biogenic;* ***GWP-LULUC:*** *Global Warming Potential land use and land use change;* ***ODP:*** *Depletion potential of the stratospheric ozone layer;* ***AP:*** *Acidification potential, Accumulated Exceedance;* ***EP-freshwater:*** *Eutrophication potential, fraction of nutrients reaching freshwater end compartment; See "additional Norwegian requirements" for indicator given as PO4 eq.* ***EP-marine:*** *Eutrophication potential, fraction of nutrients reaching freshwater end compartment;* ***EP-terrestrial:*** *Eutrophication potential, Accumulated Exceedance;* ***POCP****: Formation potential of tropospheric ozone;* ***ADP-M&M****: Abiotic depletion potential for non-fossil resources (minerals and metals);* ***ADP-fossil:*** *Abiotic depletion potential for fossil resources;* ***WDP:*** *Water deprivation potential, deprivation weighted water consumption*

Reading example: 9,0 E-03 = 9,0*10-3 = 0,009

## Additional environmental impact indicators (per declared unit – 1 pcs)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidence | 1.31E-05 | 5.31E-07 | 1.57E-07 | 8.33E-09 | 1.56E-07 | 1.89E-08 | 2.76E-08 | 9.14E-09 | -2.14E-06 |
| IRP[2] | kBq U235 eq. | 1.14E+01 | 1.10E-01 | 9.72E-03 | 5.00E-02 | 9.45E-03 | 4.32E-03 | 2.43E-01 | 1.85E-03 | -1.53E+00 |
| ETP-fw[1] | CTUe | 1.33E+03 | 2.89E+01 | 1.46E+00 | 1.82E+00 | 1.15E+00 | 9.05E-01 | 1.33E+00 | 6.80E+01 | -3.18E+02 |
| HTP-c[1] | CTUh | 4.59E-07 | 5.40E-08 | 2.49E-09 | 4.68E-09 | 2.39E-09 | 1.67E-09 | 1.11E-09 | 1.53E-09 | -2.84E-07 |
| HTP-nc[1] | CTUh | 2.35E-06 | 5.72E-08 | 1.52E-09 | 7.65E-09 | 1.05E-09 | 2.10E-09 | 3.03E-09 | 1.34E-07 | -6.57E-07 |
| SQP[1] | Dimension less | 7.56E+02 | 4.50E+01 | 7.16E-01 | 5.76E-01 | 5.99E-01 | 2.00E+00 | 2.74E+00 | 1.16E+00 | -1.04E+02 |

***PM:*** *Particulate matter emissions;* ***IRP:*** *Ionising radiation, human health;* ***ETP-fw:*** *Ecotoxicity (freshwater);* ***HTP-c:*** *Human toxicity, cancer effects;* ***HTP-nc:*** *Human toxicity, non-cancer effects;* ***SQP:*** *Land use related impacts / soil quality*

[1] The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

[2] This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

## Resource use (per declared unit – 1 pcs)

| Parameter | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| RPEE | MJ | 1.94E+02 | 1.52E+00 | 1.04E-01 | 4.26E-01 | 9.95E-02 | 5.54E-02 | 2.16E+00 | 3.80E-02 | -3.44E+01 |
| RPEM | MJ | 1.44E+01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 2.09E+02 | 1.52E+00 | 1.04E-01 | 4.26E-01 | 9.95E-02 | 5.54E-02 | 2.16E+00 | 3.80E-02 | -3.44E+01 |
| NRPE | MJ | 1.95E+03 | 1.31E+02 | 8.33E+00 | 2.44E+00 | 8.15E+00 | 3.37E+00 | 9.99E+00 | 1.56E+00 | -2.12E+02 |
| NRPM | MJ | 4.46E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 1.95E+03 | 1.31E+02 | 8.33E+00 | 2.44E+00 | 8.15E+00 | 3.37E+00 | 9.99E+00 | 1.56E+00 | -2.12E+02 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 1.13E+00 | 1.38E-02 | 7.16E-04 | 4.59E-01 | 7.56E-04 | 4.59E-04 | 8.37E-03 | 2.82E-03 | -1.74E-01 |

***RPEE*** *Renewable primary energy resources used as energy carrier;* ***RPEM*** *Renewable primary energy resources used as raw materials;* ***TPE*** *Total use of renewable primary energy resources;* ***NRPE*** *Nonrenewable primary energy resources used as energy carrier;* ***NRPM*** *Nonrenewable primary energy resources used as materials;* ***TRPE*** *Total use of non-renewable primary energy resources;* ***SM*** *Use of secondary materials;* ***RSF*** *Use of renewable secondary fuels;* ***NRSF*** *Use of non-renewable secondary fuels;* ***W*** *Use of net fresh water.*

## End of life – Waste (per declared unit – 1 pcs)

| Parameter | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| HW | kg | 3.02E-01 | 2.55E-03 | 9.54E-04 | 1.71E-04 | 7.97E-05 | 8.33E-05 | 3.05E-04 | 8.55E-02 | -8.60E-01 |
| NHW | kg | 9.77E+00 | 3.30E+00 | 5.18E-02 | 1.98E-02 | 5.31E-03 | 1.60E-01 | 3.74E+00 | 2.89E+00 | -1.17E+00 |
| RW | kg | 2.81E-03 | 2.72E-05 | 2.46E-06 | 1.28E-05 | 2.39E-06 | 1.08E-06 | 6.30E-05 | 4.55E-07 | -3.87E-04 |

***HW*** *Hazardous waste disposed;* ***NHW*** *Non-hazardous waste disposed;* ***RW*** *Radioactive waste disposed.*

### End of life – output flow (per declared unit – 1 pcs)

| Parameter | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| CR | kg | 0.00E+00 | 0.00E+00 | 8.01E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 2.23E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.63E+01 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 5.09E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.94E+00 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 1.65E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.69E+00 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 3.24E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.68E+01 | 0.00E+00 | 0.00E+00 |

***CR*** *Components for reuse;* ***MR*** *Materials for recycling;* ***MER*** *Materials for energy recovery;* ***EEE*** *Exported electric energy;* ***ETE*** *Exported thermal energy.*

### Information describing the biogenic carbon content at the factory gate

| Biogenic carbon content | Unit | Value |
|---|---|---|
| Biogenic carbon content in product | kg biogenic CO2 / FU | 0 |
| Biogenic carbon content in accompanying packaging for CHSM54RNs(DG)(BLH)/F-BH | kg biogenic CO2 / FU | 8.38E-04 |
| NOTE 1 kg biogenic carbon is equivalent to 44/12 kg of CO2 | | |

# Additional requirements

### Location based electricity mix from the use of electricity in manufacturing

For A3 stage, a location-based approach is applied to assess the environmental impact of electricity consumption. Theses two manufacturing sites are located in Zhejiang Province, which belongs to East China Power Grid, thus, regional production mix from medium voltage (production of transmission lines, in addition to direct emissions and losses in grid) - "Electricity, medium voltage {CN-ECGC}|market for electricity, medium voltage | Cut-off, U" is chosen.

| Regional electricity grid | Data source | Foreground / core [kWh/FU] | $GWP_{total}$ [kg CO2 -eq/kWh] | SUM [kg CO2 -eq] |
|---|---|---|---|---|
| *Electricity, medium voltage {CN-ECGC}\|market for electricity, medium voltage \| Cut-off, U* | Ecoinvent 3.10 | 2.34E-02 | 0.852 | 1.99E-02 |

### Additional environmental impact indicators required for construction products

In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

| Model | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|
| CHSM54RNs(DG)(BLH)/F-BH | 3.73E-01 | 2.21E-02 | 1.64E-03 | 3.06E-04 | 1.37E-03 | 5.33E-04 | 1.01E-03 | 1.32E-02 | -4.20E-02 |

***GWP-IOBC*** *Global warming potential calculated according to the principle of instantaneous oxidation, unit: kg CO2 eq/FU.*

### Hazardous substances

The declaration is based upon reference to threshold values and/or test results and/or material safety data sheets provided to EPD verifiers.
Documentation available upon request to EPD owner.
□ The product contains no substances given by the REACH Candidate list.
■ The product contains substances given by the REACH Candidate list that are less than 0,1 %

by weight.
□ The product contains dangerous substances, more than 0,1% by weight, given by the REACH Candidate List, see table.
□ The product contains no substances given by the REACH Candidate list.
□ The product is classified as hazardous waste, see table.

## Indoor environment

Not relevant for PV modules.

## Carbon footprint (A1-C4)

| PV modules | Unit | Value |
|---|---|---|
| CHSM54RNs(DG)(BLH)/F-BH | kg CO2 eq./FU | 4.13E-01 |

## LCA Results for other products

CHSM54RNs(BLH)-HC - Chint New Energy Technology (Fuyang) Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.77E-01 | 2.03E-02 | 1.68E-03 | 3.15E-04 | 1.37E-03 | 4.71E-04 | 9.20E-04 | 1.82E-02 | -4.46E-02 |
| GWP-fossil | kg CO2 eq | 3.76E-01 | 2.03E-02 | 1.52E-03 | 3.08E-04 | 1.37E-03 | 4.70E-04 | 8.88E-04 | 1.82E-02 | -4.40E-02 |
| GWP-biogenic | kg CO2 eq | 1.42E-03 | 2.26E-06 | 1.59E-04 | 6.16E-06 | 9.69E-07 | 3.22E-07 | 3.00E-05 | 1.13E-06 | -5.36E-04 |
| GWP–LUUC | kg CO2 eq | 2.65E-04 | 8.78E-06 | 1.93E-07 | 5.92E-07 | 1.84E-07 | 1.54E-07 | 2.44E-06 | 9.21E-08 | -7.71E-05 |
| ODP | kg CFC11 eq | 3.48E-08 | 3.34E-10 | 2.16E-11 | 4.42E-12 | 2.10E-11 | 9.35E-12 | 1.63E-11 | 6.48E-12 | -3.41E-10 |
| AP | molc H+ eq | 2.41E-03 | 3.30E-04 | 1.24E-05 | 1.65E-06 | 1.23E-05 | 1.47E-06 | 4.94E-06 | 4.85E-06 | -4.06E-04 |
| EP-freshwater | kg P eq | 1.39E-04 | 1.02E-06 | 6.02E-08 | 1.87E-07 | 5.80E-08 | 3.14E-08 | 6.84E-07 | 1.53E-07 | -3.45E-05 |
| EP-marine | kg N eq | 6.67E-04 | 8.49E-05 | 5.82E-06 | 3.16E-07 | 5.66E-06 | 4.96E-07 | 1.28E-06 | 3.19E-06 | -5.91E-05 |
| EP-terrestrial | molc N eq | 5.05E-03 | 9.41E-04 | 6.24E-05 | 3.05E-06 | 6.19E-05 | 5.40E-06 | 1.25E-05 | 2.52E-05 | -6.61E-04 |
| POCP | kg NMVOC eq | 1.51E-03 | 2.72E-04 | 1.87E-05 | 1.01E-06 | 1.85E-05 | 2.31E-06 | 4.03E-06 | 6.37E-06 | -1.92E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.33E-05 | 4.22E-08 | 6.13E-10 | 1.68E-09 | 5.26E-10 | 1.50E-09 | 1.73E-09 | 7.27E-10 | -8.46E-06 |
| ADP-fossil[1] | MJ | 4.48E+00 | 2.66E-01 | 1.85E-02 | 5.49E-03 | 1.81E-02 | 6.61E-03 | 1.96E-02 | 4.29E-03 | -5.03E-01 |
| WDP | m³ | 9.09E-02 | 8.81E-04 | 4.99E-05 | 4.40E-02 | 4.36E-05 | 2.71E-05 | 2.02E-04 | 2.74E-04 | -9.91E-03 |
| PM | Disease incidence | 2.91E-08 | 1.10E-09 | 3.48E-10 | 1.87E-11 | 3.46E-10 | 3.70E-11 | 5.41E-11 | 2.49E-11 | -4.98E-09 |
| IRP | kBq U235 eq. | 2.59E-02 | 2.24E-04 | 2.16E-05 | 1.12E-04 | 2.10E-05 | 8.47E-06 | 4.76E-04 | 5.11E-06 | -3.91E-03 |
| ETP-fw | CTUe | 3.04E+00 | 5.93E-02 | 3.14E-03 | 4.09E-03 | 2.56E-03 | 1.77E-03 | 2.61E-03 | 2.04E-01 | -7.54E-01 |
| HTP-c | CTUh | 1.06E-09 | 1.09E-10 | 5.53E-12 | 1.05E-11 | 5.31E-12 | 3.29E-12 | 2.18E-12 | 4.64E-12 | -6.45E-10 |
| HTP-nc | CTUh | 6.13E-09 | 1.19E-10 | 3.23E-12 | 1.72E-11 | 2.34E-12 | 4.12E-12 | 5.94E-12 | 4.13E-10 | -1.84E-09 |
| SQP | Dimensionless | 1.70E+00 | 9.41E-02 | 1.58E-03 | 1.30E-03 | 1.33E-03 | 3.93E-03 | 5.37E-03 | 2.51E-03 | -2.54E-01 |
| **Parameter** | **Unit** | **A1-A3** | **A4** | **A5** | **B2** | **C1** | **C2** | **C3** | **C4** | **D** |
| RPEE | MJ | 4.36E-01 | 3.10E-03 | 2.30E-04 | 9.56E-04 | 2.21E-04 | 1.08E-04 | 4.23E-03 | 1.05E-04 | -8.39E-02 |
| RPEM | MJ | 3.23E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.68E-01 | 3.10E-03 | 2.30E-04 | 9.56E-04 | 2.21E-04 | 1.08E-04 | 4.23E-03 | 1.05E-04 | -8.39E-02 |
| NRPE | MJ | 4.43E+00 | 2.66E-01 | 1.85E-02 | 5.49E-03 | 1.81E-02 | 6.61E-03 | 1.96E-02 | 4.29E-03 | -5.03E-01 |
| NRPM | MJ | 5.07E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.48E+00 | 2.66E-01 | 1.85E-02 | 5.49E-03 | 1.81E-02 | 6.61E-03 | 1.96E-02 | 4.29E-03 | -5.03E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.56E-03 | 2.84E-05 | 1.57E-06 | 1.03E-03 | 1.68E-06 | 9.05E-07 | 1.64E-05 | 8.47E-06 | -4.22E-04 |
| HW | kg | 6.81E-04 | 5.24E-06 | 1.69E-06 | 3.86E-07 | 1.77E-07 | 1.64E-07 | 5.98E-07 | 2.62E-04 | -1.57E-03 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NHW | kg | 2.28E-02 | 6.92E-03 | 1.05E-04 | 4.45E-05 | 1.18E-05 | 3.14E-04 | 7.32E-03 | 5.42E-03 | -2.55E-03 |
| RW | kg | 6.40E-06 | 5.54E-08 | 5.47E-09 | 2.88E-08 | 5.32E-09 | 2.11E-09 | 1.23E-07 | 1.26E-09 | -9.88E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.80E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.76E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.01E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 9.27E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.96E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 2.85E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.68E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 5.60E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.19E-02 | 0.00E+00 | 0.00E+00 |

## CHSM54RNs(DG)(BLH)/F-BH - Chint New Energy Technology (Fuyang) Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.75E-01 | 2.29E-02 | 1.73E-03 | 3.11E-04 | 1.37E-03 | 5.34E-04 | 1.04E-03 | 1.32E-02 | -4.23E-02 |
| GWP-fossil | kg CO2 eq | 3.74E-01 | 2.28E-02 | 1.57E-03 | 3.05E-04 | 1.37E-03 | 5.33E-04 | 1.01E-03 | 1.32E-02 | -4.17E-02 |
| GWP-biogenic | kg CO2 eq | 1.20E-03 | 2.55E-06 | 1.57E-04 | 6.09E-06 | 9.69E-07 | 3.65E-07 | 3.40E-05 | 8.95E-07 | -5.52E-04 |
| GWP–LUUC | kg CO2 eq | 2.61E-04 | 9.90E-06 | 1.93E-07 | 5.85E-07 | 1.84E-07 | 1.74E-07 | 2.76E-06 | 6.89E-08 | -7.35E-05 |
| ODP | kg CFC11 eq | 6.82E-09 | 3.76E-10 | 2.16E-11 | 4.37E-12 | 2.10E-11 | 1.06E-11 | 1.85E-11 | 5.24E-12 | -3.19E-10 |
| AP | molc H+ eq | 2.37E-03 | 3.72E-04 | 1.24E-05 | 1.63E-06 | 1.23E-05 | 1.67E-06 | 5.60E-06 | 3.60E-06 | -3.58E-04 |
| EP-freshwater | kg P eq | 1.31E-04 | 1.15E-06 | 6.04E-08 | 1.85E-07 | 5.80E-08 | 3.56E-08 | 7.75E-07 | 1.11E-07 | -3.05E-05 |
| EP-marine | kg N eq | 6.66E-04 | 9.57E-05 | 5.85E-06 | 3.13E-07 | 5.66E-06 | 5.62E-07 | 1.45E-06 | 2.34E-06 | -5.56E-05 |
| EP-terrestrial | molc N eq | 5.09E-03 | 1.06E-03 | 6.25E-05 | 3.02E-06 | 6.19E-05 | 6.11E-06 | 1.41E-05 | 1.86E-05 | -6.18E-04 |
| POCP | kg NMVOC eq | 1.48E-03 | 3.07E-04 | 1.87E-05 | 9.99E-07 | 1.85E-05 | 2.61E-06 | 4.57E-06 | 4.78E-06 | -1.79E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.22E-05 | 4.75E-08 | 6.16E-10 | 1.66E-09 | 5.26E-10 | 1.70E-09 | 1.96E-09 | 5.45E-10 | -7.94E-06 |
| ADP-fossil[1] | MJ | 4.37E+00 | 3.00E-01 | 1.85E-02 | 5.43E-03 | 1.81E-02 | 7.49E-03 | 2.22E-02 | 3.47E-03 | -4.70E-01 |
| WDP | $m^3$ | 8.85E-02 | 9.93E-04 | 5.15E-05 | 4.35E-02 | 4.36E-05 | 3.07E-05 | 2.29E-04 | 1.99E-04 | -9.11E-03 |
| PM | Disease incidence | 2.93E-08 | 1.24E-09 | 3.48E-10 | 1.85E-11 | 3.46E-10 | 4.19E-11 | 6.13E-11 | 2.03E-11 | -4.76E-09 |
| IRP | kBq U235 eq. | 2.53E-02 | 2.53E-04 | 2.16E-05 | 1.11E-04 | 2.10E-05 | 9.60E-06 | 5.39E-04 | 4.11E-06 | -3.41E-03 |
| ETP-fw | CTUe | 2.98E+00 | 6.68E-02 | 3.25E-03 | 4.04E-03 | 2.56E-03 | 2.01E-03 | 2.95E-03 | 1.51E-01 | -7.07E-01 |
| HTP-c | CTUh | 1.04E-09 | 1.23E-10 | 5.54E-12 | 1.04E-11 | 5.31E-12 | 3.72E-12 | 2.47E-12 | 3.41E-12 | -6.31E-10 |
| HTP-nc | CTUh | 5.25E-09 | 1.34E-10 | 3.38E-12 | 1.70E-11 | 2.34E-12 | 4.67E-12 | 6.73E-12 | 2.98E-10 | -1.46E-09 |
| SQP | Dimensionless | 1.70E+00 | 1.06E-01 | 1.59E-03 | 1.28E-03 | 1.33E-03 | 4.45E-03 | 6.08E-03 | 2.57E-03 | -2.31E-01 |
| **Parameter** | **Unit** | **A1-A3** | **A4** | **A5** | **B2** | **C1** | **C2** | **C3** | **C4** | **D** |
| RPEE | MJ | 4.31E-01 | 3.50E-03 | 2.30E-04 | 9.46E-04 | 2.21E-04 | 1.23E-04 | 4.80E-03 | 8.44E-05 | -7.65E-02 |
| RPEM | MJ | 3.19E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.63E-01 | 3.50E-03 | 2.30E-04 | 9.46E-04 | 2.21E-04 | 1.23E-04 | 4.80E-03 | 8.44E-05 | -7.65E-02 |
| NRPE | MJ | 4.36E+00 | 3.00E-01 | 1.85E-02 | 5.43E-03 | 1.81E-02 | 7.49E-03 | 2.22E-02 | 3.47E-03 | -4.70E-01 |
| NRPM | MJ | 9.90E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.37E+00 | 3.00E-01 | 1.85E-02 | 5.43E-03 | 1.81E-02 | 7.49E-03 | 2.22E-02 | 3.47E-03 | -4.70E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.50E-03 | 3.21E-05 | 1.59E-06 | 1.02E-03 | 1.68E-06 | 1.02E-06 | 1.86E-05 | 6.27E-06 | -3.86E-04 |
| HW | kg | 6.73E-04 | 5.91E-06 | 2.12E-06 | 3.81E-07 | 1.77E-07 | 1.85E-07 | 6.78E-07 | 1.90E-04 | -1.91E-03 |
| NHW | kg | 2.34E-02 | 7.80E-03 | 1.15E-04 | 4.40E-05 | 1.18E-05 | 3.55E-04 | 8.30E-03 | 6.42E-03 | -2.60E-03 |
| RW | kg | 6.24E-06 | 6.24E-08 | 5.47E-09 | 2.85E-08 | 5.32E-09 | 2.39E-09 | 1.40E-07 | 1.01E-09 | -8.59E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.78E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.95E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.62E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 1.13E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.30E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 3.67E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.93E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 7.21E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.74E-02 | 0.00E+00 | 0.00E+00 |

## CHSM54RNs(DG)/F-BH - Chint New Energy Technology (Fuyang) Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.69E-01 | 2.24E-02 | 1.72E-03 | 3.08E-04 | 1.37E-03 | 5.24E-04 | 1.02E-03 | 1.20E-02 | -4.15E-02 |
| GWP-fossil | kg CO2 eq | 3.67E-01 | 2.24E-02 | 1.57E-03 | 3.01E-04 | 1.37E-03 | 5.23E-04 | 9.88E-04 | 1.20E-02 | -4.09E-02 |
| GWP-biogenic | kg CO2 eq | 1.26E-03 | 2.50E-06 | 1.55E-04 | 6.03E-06 | 9.69E-07 | 3.59E-07 | 3.33E-05 | 8.39E-07 | -5.40E-04 |
| GWP–LUUC | kg CO2 eq | 2.57E-04 | 9.72E-06 | 1.93E-07 | 5.79E-07 | 1.84E-07 | 1.71E-07 | 2.71E-06 | 6.34E-08 | -7.22E-05 |
| ODP | kg CFC11 eq | 6.68E-09 | 3.69E-10 | 2.16E-11 | 4.32E-12 | 2.10E-11 | 1.04E-11 | 1.82E-11 | 4.89E-12 | -3.12E-10 |
| AP | molc H+ eq | 2.33E-03 | 3.66E-04 | 1.24E-05 | 1.61E-06 | 1.23E-05 | 1.64E-06 | 5.50E-06 | 3.30E-06 | -3.51E-04 |
| EP-freshwater | kg P eq | 1.29E-04 | 1.13E-06 | 6.04E-08 | 1.83E-07 | 5.80E-08 | 3.49E-08 | 7.61E-07 | 1.01E-07 | -2.99E-05 |
| EP-marine | kg N eq | 6.57E-04 | 9.40E-05 | 5.85E-06 | 3.09E-07 | 5.66E-06 | 5.52E-07 | 1.42E-06 | 2.14E-06 | -5.46E-05 |
| EP-terrestrial | molc N eq | 5.01E-03 | 1.04E-03 | 6.25E-05 | 2.99E-06 | 6.19E-05 | 6.00E-06 | 1.39E-05 | 1.71E-05 | -6.08E-04 |
| POCP | kg NMVOC eq | 1.46E-03 | 3.01E-04 | 1.87E-05 | 9.88E-07 | 1.85E-05 | 2.56E-06 | 4.49E-06 | 4.39E-06 | -1.76E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.20E-05 | 4.67E-08 | 6.15E-10 | 1.64E-09 | 5.26E-10 | 1.67E-09 | 1.92E-09 | 5.02E-10 | -7.83E-06 |
| ADP-fossil[1] | MJ | 4.28E+00 | 2.95E-01 | 1.85E-02 | 5.37E-03 | 1.81E-02 | 7.35E-03 | 2.18E-02 | 3.24E-03 | -4.60E-01 |
| WDP | $m^3$ | 8.71E-02 | 9.75E-04 | 5.14E-05 | 4.30E-02 | 4.36E-05 | 3.01E-05 | 2.25E-04 | 1.81E-04 | -8.94E-03 |
| PM | Disease incidence | 2.89E-08 | 1.21E-09 | 3.48E-10 | 1.83E-11 | 3.46E-10 | 4.11E-11 | 6.01E-11 | 1.90E-11 | -4.69E-09 |
| IRP | kBq U235 eq. | 2.49E-02 | 2.48E-04 | 2.16E-05 | 1.10E-04 | 2.10E-05 | 9.43E-06 | 5.29E-04 | 3.85E-06 | -3.29E-03 |
| ETP-fw | CTUe | 2.93E+00 | 6.56E-02 | 3.24E-03 | 4.00E-03 | 2.56E-03 | 1.97E-03 | 2.90E-03 | 1.39E-01 | -6.97E-01 |
| HTP-c | CTUh | 1.02E-09 | 1.21E-10 | 5.54E-12 | 1.03E-11 | 5.31E-12 | 3.66E-12 | 2.42E-12 | 3.12E-12 | -6.23E-10 |
| HTP-nc | CTUh | 5.15E-09 | 1.31E-10 | 3.37E-12 | 1.68E-11 | 2.34E-12 | 4.58E-12 | 6.61E-12 | 2.71E-10 | -1.43E-09 |
| SQP | Dimensionless | 1.66E+00 | 1.04E-01 | 1.58E-03 | 1.27E-03 | 1.33E-03 | 4.37E-03 | 5.97E-03 | 2.50E-03 | -2.27E-01 |
| **Parameter** | **Unit** | **A1-A3** | **A4** | **A5** | **B2** | **C1** | **C2** | **C3** | **C4** | **D** |
| RPEE | MJ | 4.23E-01 | 3.43E-03 | 2.30E-04 | 9.35E-04 | 2.21E-04 | 1.21E-04 | 4.71E-03 | 7.91E-05 | -7.46E-02 |
| RPEM | MJ | 3.16E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.55E-01 | 3.43E-03 | 2.30E-04 | 9.35E-04 | 2.21E-04 | 1.21E-04 | 4.71E-03 | 7.91E-05 | -7.46E-02 |
| NRPE | MJ | 4.27E+00 | 2.95E-01 | 1.85E-02 | 5.37E-03 | 1.81E-02 | 7.35E-03 | 2.18E-02 | 3.24E-03 | -4.60E-01 |
| NRPM | MJ | 9.79E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.28E+00 | 2.95E-01 | 1.85E-02 | 5.37E-03 | 1.81E-02 | 7.35E-03 | 2.18E-02 | 3.24E-03 | -4.60E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.46E-03 | 3.15E-05 | 1.59E-06 | 1.01E-03 | 1.68E-06 | 1.01E-06 | 1.82E-05 | 5.69E-06 | -3.78E-04 |
| HW | kg | 6.64E-04 | 5.81E-06 | 2.09E-06 | 3.77E-07 | 1.77E-07 | 1.82E-07 | 6.65E-07 | 1.74E-04 | -1.89E-03 |
| NHW | kg | 2.31E-02 | 7.66E-03 | 1.14E-04 | 4.35E-05 | 1.18E-05 | 3.49E-04 | 8.15E-03 | 6.34E-03 | -2.56E-03 |
| RW | kg | 6.15E-06 | 6.13E-08 | 5.47E-09 | 2.82E-08 | 5.32E-09 | 2.34E-09 | 1.37E-07 | 9.43E-10 | -8.26E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.76E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.89E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.58E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 1.12E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.92E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 3.63E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.76E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 7.13E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.41E-02 | 0.00E+00 | 0.00E+00 |

## CHSM54RNs(DGT)(BLH)/F-BH - Chint New Energy Technology (Fuyang) Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.75E-01 | 2.29E-02 | 1.73E-03 | 3.11E-04 | 1.37E-03 | 5.34E-04 | 1.04E-03 | 1.32E-02 | -4.23E-02 |
| GWP-fossil | kg CO2 eq | 3.74E-01 | 2.28E-02 | 1.57E-03 | 3.05E-04 | 1.37E-03 | 5.33E-04 | 1.01E-03 | 1.32E-02 | -4.17E-02 |
| GWP-biogenic | kg CO2 eq | 1.20E-03 | 2.55E-06 | 1.57E-04 | 6.09E-06 | 9.69E-07 | 3.65E-07 | 3.40E-05 | 8.95E-07 | -5.52E-04 |
| GWP–LUUC | kg CO2 eq | 2.61E-04 | 9.90E-06 | 1.93E-07 | 5.85E-07 | 1.84E-07 | 1.74E-07 | 2.76E-06 | 6.89E-08 | -7.35E-05 |
| ODP | kg CFC11 eq | 6.82E-09 | 3.76E-10 | 2.16E-11 | 4.37E-12 | 2.10E-11 | 1.06E-11 | 1.85E-11 | 5.24E-12 | -3.19E-10 |
| AP | molc H+ eq | 2.37E-03 | 3.72E-04 | 1.24E-05 | 1.63E-06 | 1.23E-05 | 1.67E-06 | 5.60E-06 | 3.60E-06 | -3.58E-04 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| EP-freshwater | kg P eq | 1.31E-04 | 1.15E-06 | 6.04E-08 | 1.85E-07 | 5.80E-08 | 3.56E-08 | 7.75E-07 | 1.11E-07 | -3.05E-05 |
| EP-marine | kg N eq | 6.66E-04 | 9.57E-05 | 5.85E-06 | 3.13E-07 | 5.66E-06 | 5.62E-07 | 1.45E-06 | 2.34E-06 | -5.56E-05 |
| EP-terrestrial | molc N eq | 5.09E-03 | 1.06E-03 | 6.25E-05 | 3.02E-06 | 6.19E-05 | 6.11E-06 | 1.41E-05 | 1.86E-05 | -6.18E-04 |
| POCP | kg NMVOC eq | 1.48E-03 | 3.07E-04 | 1.87E-05 | 9.99E-07 | 1.85E-05 | 2.61E-06 | 4.57E-06 | 4.78E-06 | -1.79E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.22E-05 | 4.75E-08 | 6.16E-10 | 1.66E-09 | 5.26E-10 | 1.70E-09 | 1.96E-09 | 5.45E-10 | -7.94E-06 |
| ADP-fossil[1] | MJ | 4.37E+00 | 3.00E-01 | 1.85E-02 | 5.43E-03 | 1.81E-02 | 7.49E-03 | 2.22E-02 | 3.47E-03 | -4.70E-01 |
| WDP | m³ | 8.85E-02 | 9.93E-04 | 5.15E-05 | 4.35E-02 | 4.36E-05 | 3.07E-05 | 2.29E-04 | 1.99E-04 | -9.11E-03 |
| PM | Disease incidence | 2.93E-08 | 1.24E-09 | 3.48E-10 | 1.85E-11 | 3.46E-10 | 4.19E-11 | 6.13E-11 | 2.03E-11 | -4.76E-09 |
| IRP | kBq U235 eq. | 2.53E-02 | 2.53E-04 | 2.16E-05 | 1.11E-04 | 2.10E-05 | 9.60E-06 | 5.39E-04 | 4.11E-06 | -3.41E-03 |
| ETP-fw | CTUe | 2.98E+00 | 6.68E-02 | 3.25E-03 | 4.04E-03 | 2.56E-03 | 2.01E-03 | 2.95E-03 | 1.51E-01 | -7.07E-01 |
| HTP-c | CTUh | 1.04E-09 | 1.23E-10 | 5.54E-12 | 1.04E-11 | 5.31E-12 | 3.72E-12 | 2.47E-12 | 3.41E-12 | -6.31E-10 |
| HTP-nc | CTUh | 5.25E-09 | 1.34E-10 | 3.38E-12 | 1.70E-11 | 2.34E-12 | 4.67E-12 | 6.73E-12 | 2.98E-10 | -1.46E-09 |
| SQP | Dimensionless | 1.70E+00 | 1.06E-01 | 1.59E-03 | 1.28E-03 | 1.33E-03 | 4.45E-03 | 6.08E-03 | 2.57E-03 | -2.31E-01 |
| Parameter | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
| RPEE | MJ | 4.31E-01 | 3.50E-03 | 2.30E-04 | 9.46E-04 | 2.21E-04 | 1.23E-04 | 4.80E-03 | 8.44E-05 | -7.65E-02 |
| RPEM | MJ | 3.19E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.63E-01 | 3.50E-03 | 2.30E-04 | 9.46E-04 | 2.21E-04 | 1.23E-04 | 4.80E-03 | 8.44E-05 | -7.65E-02 |
| NRPE | MJ | 4.36E+00 | 3.00E-01 | 1.85E-02 | 5.43E-03 | 1.81E-02 | 7.49E-03 | 2.22E-02 | 3.47E-03 | -4.70E-01 |
| NRPM | MJ | 9.90E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.37E+00 | 3.00E-01 | 1.85E-02 | 5.43E-03 | 1.81E-02 | 7.49E-03 | 2.22E-02 | 3.47E-03 | -4.70E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.50E-03 | 3.21E-05 | 1.59E-06 | 1.02E-03 | 1.68E-06 | 1.02E-06 | 1.86E-05 | 6.27E-06 | -3.86E-04 |
| HW | kg | 6.73E-04 | 5.91E-06 | 2.12E-06 | 3.81E-07 | 1.77E-07 | 1.85E-07 | 6.78E-07 | 1.90E-04 | -1.91E-03 |
| NHW | kg | 2.34E-02 | 7.80E-03 | 1.15E-04 | 4.40E-05 | 1.18E-05 | 3.55E-04 | 8.30E-03 | 6.42E-03 | -2.60E-03 |
| RW | kg | 6.24E-06 | 6.24E-08 | 5.47E-09 | 2.85E-08 | 5.32E-09 | 2.39E-09 | 1.40E-07 | 1.01E-09 | -8.59E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.78E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.95E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.62E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 1.13E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.30E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 3.67E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.93E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 7.21E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.74E-02 | 0.00E+00 | 0.00E+00 |

## CHSM54RNs-HC - Chint New Energy Technology (Fuyang) Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.77E-01 | 2.03E-02 | 1.68E-03 | 3.15E-04 | 1.37E-03 | 4.71E-04 | 9.20E-04 | 1.82E-02 | -4.46E-02 |
| GWP-fossil | kg CO2 eq | 3.76E-01 | 2.03E-02 | 1.52E-03 | 3.08E-04 | 1.37E-03 | 4.70E-04 | 8.88E-04 | 1.82E-02 | -4.40E-02 |
| GWP-biogenic | kg CO2 eq | 1.42E-03 | 2.26E-06 | 1.59E-04 | 6.16E-06 | 9.69E-07 | 3.22E-07 | 3.00E-05 | 1.13E-06 | -5.36E-04 |
| GWP–LUUC | kg CO2 eq | 2.65E-04 | 8.78E-06 | 1.93E-07 | 5.92E-07 | 1.84E-07 | 1.54E-07 | 2.44E-06 | 9.21E-08 | -7.71E-05 |
| ODP | kg CFC11 eq | 3.48E-08 | 3.34E-10 | 2.16E-11 | 4.42E-12 | 2.10E-11 | 9.35E-12 | 1.63E-11 | 6.48E-12 | -3.41E-10 |
| AP | molc H+ eq | 2.41E-03 | 3.30E-04 | 1.24E-05 | 1.65E-06 | 1.23E-05 | 1.47E-06 | 4.94E-06 | 4.85E-06 | -4.06E-04 |
| EP-freshwater | kg P eq | 1.39E-04 | 1.02E-06 | 6.02E-08 | 1.87E-07 | 5.80E-08 | 3.14E-08 | 6.84E-07 | 1.53E-07 | -3.45E-05 |
| EP-marine | kg N eq | 6.67E-04 | 8.49E-05 | 5.82E-06 | 3.16E-07 | 5.66E-06 | 4.96E-07 | 1.28E-06 | 3.19E-06 | -5.91E-05 |
| EP-terrestrial | molc N eq | 5.05E-03 | 9.41E-04 | 6.24E-05 | 3.05E-06 | 6.19E-05 | 5.40E-06 | 1.25E-05 | 2.52E-05 | -6.61E-04 |
| POCP | kg NMVOC eq | 1.51E-03 | 2.72E-04 | 1.87E-05 | 1.01E-06 | 1.85E-05 | 2.31E-06 | 4.03E-06 | 6.37E-06 | -1.92E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.33E-05 | 4.22E-08 | 6.13E-10 | 1.68E-09 | 5.26E-10 | 1.50E-09 | 1.73E-09 | 7.27E-10 | -8.46E-06 |
| ADP-fossil[1] | MJ | 4.48E+00 | 2.66E-01 | 1.85E-02 | 5.49E-03 | 1.81E-02 | 6.61E-03 | 1.96E-02 | 4.29E-03 | -5.03E-01 |
| WDP | m³ | 9.09E-02 | 8.81E-04 | 4.99E-05 | 4.40E-02 | 4.36E-05 | 2.71E-05 | 2.02E-04 | 2.74E-04 | -9.91E-03 |
| PM | Disease incidence | 2.91E-08 | 1.10E-09 | 3.48E-10 | 1.87E-11 | 3.46E-10 | 3.70E-11 | 5.41E-11 | 2.49E-11 | -4.98E-09 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| IRP | kBq U235 eq. | 2.59E-02 | 2.24E-04 | 2.16E-05 | 1.12E-04 | 2.10E-05 | 8.47E-06 | 4.76E-04 | 5.11E-06 | -3.91E-03 |
| ETP-fw | CTUe | 3.04E+00 | 5.93E-02 | 3.14E-03 | 4.09E-03 | 2.56E-03 | 1.77E-03 | 2.61E-03 | 2.04E-01 | -7.54E-01 |
| HTP-c | CTUh | 1.06E-09 | 1.09E-10 | 5.53E-12 | 1.05E-11 | 5.31E-12 | 3.29E-12 | 2.18E-12 | 4.64E-12 | -6.45E-10 |
| HTP-nc | CTUh | 6.13E-09 | 1.19E-10 | 3.23E-12 | 1.72E-11 | 2.34E-12 | 4.12E-12 | 5.94E-12 | 4.13E-10 | -1.84E-09 |
| SQP | Dimensionless | 1.70E+00 | 9.41E-02 | 1.58E-03 | 1.30E-03 | 1.33E-03 | 3.93E-03 | 5.37E-03 | 2.51E-03 | -2.54E-01 |
| **Parameter** | **Unit** | **A1-A3** | **A4** | **A5** | **B2** | **C1** | **C2** | **C3** | **C4** | **D** |
| RPEE | MJ | 4.36E-01 | 3.10E-03 | 2.30E-04 | 9.56E-04 | 2.21E-04 | 1.08E-04 | 4.23E-03 | 1.05E-04 | -8.39E-02 |
| RPEM | MJ | 3.23E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.68E-01 | 3.10E-03 | 2.30E-04 | 9.56E-04 | 2.21E-04 | 1.08E-04 | 4.23E-03 | 1.05E-04 | -8.39E-02 |
| NRPE | MJ | 4.43E+00 | 2.66E-01 | 1.85E-02 | 5.49E-03 | 1.81E-02 | 6.61E-03 | 1.96E-02 | 4.29E-03 | -5.03E-01 |
| NRPM | MJ | 5.07E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.48E+00 | 2.66E-01 | 1.85E-02 | 5.49E-03 | 1.81E-02 | 6.61E-03 | 1.96E-02 | 4.29E-03 | -5.03E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.56E-03 | 2.84E-05 | 1.57E-06 | 1.03E-03 | 1.68E-06 | 9.05E-07 | 1.64E-05 | 8.47E-06 | -4.22E-04 |
| HW | kg | 6.81E-04 | 5.24E-06 | 1.69E-06 | 3.86E-07 | 1.77E-07 | 1.64E-07 | 5.98E-07 | 2.62E-04 | -1.57E-03 |
| NHW | kg | 2.28E-02 | 6.92E-03 | 1.05E-04 | 4.45E-05 | 1.18E-05 | 3.14E-04 | 7.32E-03 | 5.42E-03 | -2.55E-03 |
| RW | kg | 6.40E-06 | 5.54E-08 | 5.47E-09 | 2.88E-08 | 5.32E-09 | 2.11E-09 | 1.23E-07 | 1.26E-09 | -9.88E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.80E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.76E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.01E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 9.27E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.96E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 2.85E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.68E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 5.60E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.19E-02 | 0.00E+00 | 0.00E+00 |

## CHSM60RNs(DG)(BLH)/F-BH - Chint New Energy Technology (Fuyang) Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.72E-01 | 2.23E-02 | 1.71E-03 | 3.11E-04 | 1.37E-03 | 5.20E-04 | 1.02E-03 | 1.29E-02 | -4.31E-02 |
| GWP-fossil | kg CO2 eq | 3.70E-01 | 2.22E-02 | 1.55E-03 | 3.04E-04 | 1.37E-03 | 5.20E-04 | 9.81E-04 | 1.29E-02 | -4.25E-02 |
| GWP-biogenic | kg CO2 eq | 1.39E-03 | 2.48E-06 | 1.52E-04 | 6.09E-06 | 9.69E-07 | 3.56E-07 | 3.31E-05 | 8.84E-07 | -5.43E-04 |
| GWP–LUUC | kg CO2 eq | 2.61E-04 | 9.64E-06 | 1.93E-07 | 5.84E-07 | 1.84E-07 | 1.70E-07 | 2.70E-06 | 6.77E-08 | -7.55E-05 |
| ODP | kg CFC11 eq | 6.58E-09 | 3.66E-10 | 2.15E-11 | 4.36E-12 | 2.10E-11 | 1.03E-11 | 1.81E-11 | 5.14E-12 | -3.24E-10 |
| AP | molc H+ eq | 2.34E-03 | 3.63E-04 | 1.24E-05 | 1.63E-06 | 1.23E-05 | 1.63E-06 | 5.46E-06 | 3.53E-06 | -3.58E-04 |
| EP-freshwater | kg P eq | 1.30E-04 | 1.12E-06 | 6.03E-08 | 1.85E-07 | 5.80E-08 | 3.47E-08 | 7.56E-07 | 1.09E-07 | -3.04E-05 |
| EP-marine | kg N eq | 6.61E-04 | 9.32E-05 | 5.84E-06 | 3.13E-07 | 5.66E-06 | 5.48E-07 | 1.41E-06 | 2.30E-06 | -5.62E-05 |
| EP-terrestrial | molc N eq | 5.02E-03 | 1.03E-03 | 6.25E-05 | 3.02E-06 | 6.19E-05 | 5.96E-06 | 1.38E-05 | 1.83E-05 | -6.24E-04 |
| POCP | kg NMVOC eq | 1.46E-03 | 2.99E-04 | 1.87E-05 | 9.98E-07 | 1.85E-05 | 2.55E-06 | 4.46E-06 | 4.69E-06 | -1.81E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.20E-05 | 4.63E-08 | 6.11E-10 | 1.66E-09 | 5.26E-10 | 1.66E-09 | 1.91E-09 | 5.36E-10 | -7.85E-06 |
| ADP-fossil[1] | MJ | 4.33E+00 | 2.92E-01 | 1.85E-02 | 5.42E-03 | 1.81E-02 | 7.30E-03 | 2.17E-02 | 3.40E-03 | -4.78E-01 |
| WDP | $m^3$ | 8.76E-02 | 9.67E-04 | 5.09E-05 | 4.34E-02 | 4.36E-05 | 2.99E-05 | 2.24E-04 | 1.95E-04 | -9.21E-03 |
| PM | Disease incidence | 2.90E-08 | 1.20E-09 | 3.48E-10 | 1.85E-11 | 3.46E-10 | 4.08E-11 | 5.97E-11 | 1.99E-11 | -4.89E-09 |
| IRP | kBq U235 eq. | 2.50E-02 | 2.46E-04 | 2.16E-05 | 1.11E-04 | 2.10E-05 | 9.36E-06 | 5.26E-04 | 4.04E-06 | -3.43E-03 |
| ETP-fw | CTUe | 2.95E+00 | 6.51E-02 | 3.20E-03 | 4.04E-03 | 2.56E-03 | 1.96E-03 | 2.88E-03 | 1.49E-01 | -7.06E-01 |
| HTP-c | CTUh | 1.03E-09 | 1.20E-10 | 5.53E-12 | 1.04E-11 | 5.31E-12 | 3.63E-12 | 2.41E-12 | 3.35E-12 | -6.37E-10 |
| HTP-nc | CTUh | 5.11E-09 | 1.30E-10 | 3.32E-12 | 1.70E-11 | 2.34E-12 | 4.55E-12 | 6.57E-12 | 2.93E-10 | -1.41E-09 |
| SQP | Dimensionless | 1.66E+00 | 1.03E-01 | 1.57E-03 | 1.28E-03 | 1.33E-03 | 4.34E-03 | 5.93E-03 | 2.51E-03 | -2.31E-01 |
| **Parameter** | **Unit** | **A1-A3** | **A4** | **A5** | **B2** | **C1** | **C2** | **C3** | **C4** | **D** |
| RPEE | MJ | 4.26E-01 | 3.41E-03 | 2.30E-04 | 9.45E-04 | 2.21E-04 | 1.20E-04 | 4.68E-03 | 8.30E-05 | -7.71E-02 |
| RPEM | MJ | 3.03E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| TPE | MJ | 4.57E-01 | 3.41E-03 | 2.30E-04 | 9.45E-04 | 2.21E-04 | 1.20E-04 | 4.68E-03 | 8.30E-05 | -7.71E-02 |
| NRPE | MJ | 4.32E+00 | 2.92E-01 | 1.85E-02 | 5.42E-03 | 1.81E-02 | 7.30E-03 | 2.17E-02 | 3.40E-03 | -4.78E-01 |
| NRPM | MJ | 8.95E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.33E+00 | 2.92E-01 | 1.85E-02 | 5.42E-03 | 1.81E-02 | 7.30E-03 | 2.17E-02 | 3.40E-03 | -4.78E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.48E-03 | 3.12E-05 | 1.59E-06 | 1.02E-03 | 1.68E-06 | 9.99E-07 | 1.81E-05 | 6.11E-06 | -3.90E-04 |
| HW | kg | 6.76E-04 | 5.76E-06 | 1.97E-06 | 3.81E-07 | 1.77E-07 | 1.81E-07 | 6.61E-07 | 1.87E-04 | -1.86E-03 |
| NHW | kg | 2.31E-02 | 7.60E-03 | 1.10E-04 | 4.39E-05 | 1.18E-05 | 3.47E-04 | 8.09E-03 | 6.24E-03 | -2.60E-03 |
| RW | kg | 6.18E-06 | 6.08E-08 | 5.46E-09 | 2.85E-08 | 5.32E-09 | 2.33E-09 | 1.36E-07 | 9.92E-10 | -8.63E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.68E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.74E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.53E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 1.06E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.23E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 3.40E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.90E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 6.68E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.68E-02 | 0.00E+00 | 0.00E+00 |

## CHSM60RNs(DG)/F-BH - Chint New Energy Technology (Fuyang) Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.68E-01 | 2.20E-02 | 1.70E-03 | 3.08E-04 | 1.37E-03 | 5.15E-04 | 1.01E-03 | 1.28E-02 | -4.27E-02 |
| GWP-fossil | kg CO2 eq | 3.66E-01 | 2.20E-02 | 1.55E-03 | 3.01E-04 | 1.37E-03 | 5.15E-04 | 9.71E-04 | 1.28E-02 | -4.21E-02 |
| GWP-biogenic | kg CO2 eq | 1.38E-03 | 2.46E-06 | 1.50E-04 | 6.03E-06 | 9.69E-07 | 3.53E-07 | 3.28E-05 | 8.75E-07 | -5.38E-04 |
| GWP–LUUC | kg CO2 eq | 2.59E-04 | 9.55E-06 | 1.93E-07 | 5.79E-07 | 1.84E-07 | 1.68E-07 | 2.67E-06 | 6.70E-08 | -7.47E-05 |
| ODP | kg CFC11 eq | 6.52E-09 | 3.63E-10 | 2.15E-11 | 4.32E-12 | 2.10E-11 | 1.02E-11 | 1.79E-11 | 5.09E-12 | -3.21E-10 |
| AP | molc H+ eq | 2.31E-03 | 3.59E-04 | 1.24E-05 | 1.61E-06 | 1.23E-05 | 1.61E-06 | 5.41E-06 | 3.50E-06 | -3.54E-04 |
| EP-freshwater | kg P eq | 1.28E-04 | 1.11E-06 | 6.03E-08 | 1.83E-07 | 5.80E-08 | 3.43E-08 | 7.48E-07 | 1.08E-07 | -3.01E-05 |
| EP-marine | kg N eq | 6.54E-04 | 9.23E-05 | 5.84E-06 | 3.09E-07 | 5.66E-06 | 5.43E-07 | 1.40E-06 | 2.27E-06 | -5.57E-05 |
| EP-terrestrial | molc N eq | 4.98E-03 | 1.02E-03 | 6.25E-05 | 2.99E-06 | 6.19E-05 | 5.90E-06 | 1.37E-05 | 1.81E-05 | -6.18E-04 |
| POCP | kg NMVOC eq | 1.45E-03 | 2.96E-04 | 1.87E-05 | 9.88E-07 | 1.85E-05 | 2.52E-06 | 4.41E-06 | 4.64E-06 | -1.80E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.19E-05 | 4.58E-08 | 6.10E-10 | 1.64E-09 | 5.26E-10 | 1.65E-09 | 1.89E-09 | 5.30E-10 | -7.77E-06 |
| ADP-fossil[1] | MJ | 4.29E+00 | 2.89E-01 | 1.85E-02 | 5.37E-03 | 1.81E-02 | 7.23E-03 | 2.15E-02 | 3.37E-03 | -4.73E-01 |
| WDP | $m^3$ | 8.67E-02 | 9.58E-04 | 5.09E-05 | 4.30E-02 | 4.36E-05 | 2.96E-05 | 2.21E-04 | 1.93E-04 | -9.12E-03 |
| PM | Disease incidence | 2.88E-08 | 1.19E-09 | 3.48E-10 | 1.83E-11 | 3.46E-10 | 4.04E-11 | 5.91E-11 | 1.97E-11 | -4.84E-09 |
| IRP | kBq U235 eq. | 2.48E-02 | 2.44E-04 | 2.15E-05 | 1.10E-04 | 2.10E-05 | 9.27E-06 | 5.21E-04 | 4.00E-06 | -3.40E-03 |
| ETP-fw | CTUe | 2.92E+00 | 6.44E-02 | 3.20E-03 | 4.00E-03 | 2.56E-03 | 1.94E-03 | 2.85E-03 | 1.47E-01 | -6.99E-01 |
| HTP-c | CTUh | 1.02E-09 | 1.19E-10 | 5.53E-12 | 1.03E-11 | 5.31E-12 | 3.60E-12 | 2.38E-12 | 3.32E-12 | -6.31E-10 |
| HTP-nc | CTUh | 5.06E-09 | 1.29E-10 | 3.31E-12 | 1.68E-11 | 2.34E-12 | 4.51E-12 | 6.50E-12 | 2.90E-10 | -1.40E-09 |
| SQP | Dimensionless | 1.64E+00 | 1.02E-01 | 1.57E-03 | 1.27E-03 | 1.33E-03 | 4.30E-03 | 5.87E-03 | 2.49E-03 | -2.29E-01 |
| **Parameter** | **Unit** | **A1-A3** | **A4** | **A5** | **B2** | **C1** | **C2** | **C3** | **C4** | **D** |
| RPEE | MJ | 4.22E-01 | 3.37E-03 | 2.30E-04 | 9.35E-04 | 2.21E-04 | 1.19E-04 | 4.63E-03 | 8.22E-05 | -7.64E-02 |
| RPEM | MJ | 3.00E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.52E-01 | 3.37E-03 | 2.30E-04 | 9.35E-04 | 2.21E-04 | 1.19E-04 | 4.63E-03 | 8.22E-05 | -7.64E-02 |
| NRPE | MJ | 4.28E+00 | 2.89E-01 | 1.85E-02 | 5.37E-03 | 1.81E-02 | 7.23E-03 | 2.15E-02 | 3.37E-03 | -4.73E-01 |
| NRPM | MJ | 8.86E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.29E+00 | 2.89E-01 | 1.85E-02 | 5.37E-03 | 1.81E-02 | 7.23E-03 | 2.15E-02 | 3.37E-03 | -4.73E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.46E-03 | 3.09E-05 | 1.59E-06 | 1.01E-03 | 1.68E-06 | 9.90E-07 | 1.79E-05 | 6.05E-06 | -3.87E-04 |
| HW | kg | 6.69E-04 | 5.70E-06 | 1.96E-06 | 3.77E-07 | 1.77E-07 | 1.79E-07 | 6.54E-07 | 1.85E-04 | -1.84E-03 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NHW | kg | 2.29E-02 | 7.52E-03 | 1.09E-04 | 4.35E-05 | 1.18E-05 | 3.43E-04 | 8.01E-03 | 6.18E-03 | -2.58E-03 |
| RW | kg | 6.12E-06 | 6.02E-08 | 5.46E-09 | 2.82E-08 | 5.32E-09 | 2.30E-09 | 1.35E-07 | 9.82E-10 | -8.55E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.66E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.69E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.50E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 1.05E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.18E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 3.37E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.88E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 6.61E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.64E-02 | 0.00E+00 | 0.00E+00 |

## CHSM60RNs(DGT)(BLH)/F-BH - Chint New Energy Technology (Fuyang) Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.72E-01 | 2.23E-02 | 1.71E-03 | 3.11E-04 | 1.37E-03 | 5.20E-04 | 1.02E-03 | 1.29E-02 | -4.31E-02 |
| GWP-fossil | kg CO2 eq | 3.70E-01 | 2.22E-02 | 1.55E-03 | 3.04E-04 | 1.37E-03 | 5.20E-04 | 9.81E-04 | 1.29E-02 | -4.25E-02 |
| GWP-biogenic | kg CO2 eq | 1.39E-03 | 2.48E-06 | 1.52E-04 | 6.09E-06 | 9.69E-07 | 3.56E-07 | 3.31E-05 | 8.84E-07 | -5.43E-04 |
| GWP–LUUC | kg CO2 eq | 2.61E-04 | 9.64E-06 | 1.93E-07 | 5.84E-07 | 1.84E-07 | 1.70E-07 | 2.70E-06 | 6.77E-08 | -7.55E-05 |
| ODP | kg CFC11 eq | 6.58E-09 | 3.66E-10 | 2.15E-11 | 4.36E-12 | 2.10E-11 | 1.03E-11 | 1.81E-11 | 5.14E-12 | -3.24E-10 |
| AP | molc H+ eq | 2.34E-03 | 3.63E-04 | 1.24E-05 | 1.63E-06 | 1.23E-05 | 1.63E-06 | 5.46E-06 | 3.53E-06 | -3.58E-04 |
| EP-freshwater | kg P eq | 1.30E-04 | 1.12E-06 | 6.03E-08 | 1.85E-07 | 5.80E-08 | 3.47E-08 | 7.56E-07 | 1.09E-07 | -3.04E-05 |
| EP-marine | kg N eq | 6.61E-04 | 9.32E-05 | 5.84E-06 | 3.13E-07 | 5.66E-06 | 5.48E-07 | 1.41E-06 | 2.30E-06 | -5.62E-05 |
| EP-terrestrial | molc N eq | 5.02E-03 | 1.03E-03 | 6.25E-05 | 3.02E-06 | 6.19E-05 | 5.96E-06 | 1.38E-05 | 1.83E-05 | -6.24E-04 |
| POCP | kg NMVOC eq | 1.46E-03 | 2.99E-04 | 1.87E-05 | 9.98E-07 | 1.85E-05 | 2.55E-06 | 4.46E-06 | 4.69E-06 | -1.81E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.20E-05 | 4.63E-08 | 6.11E-10 | 1.66E-09 | 5.26E-10 | 1.66E-09 | 1.91E-09 | 5.36E-10 | -7.85E-06 |
| ADP-fossil[1] | MJ | 4.33E+00 | 2.92E-01 | 1.85E-02 | 5.42E-03 | 1.81E-02 | 7.30E-03 | 2.17E-02 | 3.40E-03 | -4.78E-01 |
| WDP | m³ | 8.76E-02 | 9.67E-04 | 5.09E-05 | 4.34E-02 | 4.36E-05 | 2.99E-05 | 2.24E-04 | 1.95E-04 | -9.21E-03 |
| PM | Disease incidence | 2.90E-08 | 1.20E-09 | 3.48E-10 | 1.85E-11 | 3.46E-10 | 4.08E-11 | 5.97E-11 | 1.99E-11 | -4.89E-09 |
| IRP | kBq U235 eq. | 2.50E-02 | 2.46E-04 | 2.16E-05 | 1.11E-04 | 2.10E-05 | 9.36E-06 | 5.26E-04 | 4.04E-06 | -3.43E-03 |
| ETP-fw | CTUe | 2.95E+00 | 6.51E-02 | 3.20E-03 | 4.04E-03 | 2.56E-03 | 1.96E-03 | 2.88E-03 | 1.49E-01 | -7.06E-01 |
| HTP-c | CTUh | 1.03E-09 | 1.20E-10 | 5.53E-12 | 1.04E-11 | 5.31E-12 | 3.63E-12 | 2.41E-12 | 3.35E-12 | -6.37E-10 |
| HTP-nc | CTUh | 5.11E-09 | 1.30E-10 | 3.32E-12 | 1.70E-11 | 2.34E-12 | 4.55E-12 | 6.57E-12 | 2.93E-10 | -1.41E-09 |
| SQP | Dimensionless | 1.66E+00 | 1.03E-01 | 1.57E-03 | 1.28E-03 | 1.33E-03 | 4.34E-03 | 5.93E-03 | 2.51E-03 | -2.31E-01 |
| Parameter | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
| RPEE | MJ | 4.26E-01 | 3.41E-03 | 2.30E-04 | 9.45E-04 | 2.21E-04 | 1.20E-04 | 4.68E-03 | 8.30E-05 | -7.71E-02 |
| RPEM | MJ | 3.03E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.57E-01 | 3.41E-03 | 2.30E-04 | 9.45E-04 | 2.21E-04 | 1.20E-04 | 4.68E-03 | 8.30E-05 | -7.71E-02 |
| NRPE | MJ | 4.32E+00 | 2.92E-01 | 1.85E-02 | 5.42E-03 | 1.81E-02 | 7.30E-03 | 2.17E-02 | 3.40E-03 | -4.78E-01 |
| NRPM | MJ | 8.95E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.33E+00 | 2.92E-01 | 1.85E-02 | 5.42E-03 | 1.81E-02 | 7.30E-03 | 2.17E-02 | 3.40E-03 | -4.78E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.48E-03 | 3.12E-05 | 1.59E-06 | 1.02E-03 | 1.68E-06 | 9.99E-07 | 1.81E-05 | 6.11E-06 | -3.90E-04 |
| HW | kg | 6.76E-04 | 5.76E-06 | 1.97E-06 | 3.81E-07 | 1.77E-07 | 1.81E-07 | 6.61E-07 | 1.87E-04 | -1.86E-03 |
| NHW | kg | 2.31E-02 | 7.60E-03 | 1.10E-04 | 4.39E-05 | 1.18E-05 | 3.47E-04 | 8.09E-03 | 6.24E-03 | -2.60E-03 |
| RW | kg | 6.18E-06 | 6.08E-08 | 5.46E-09 | 2.85E-08 | 5.32E-09 | 2.33E-09 | 1.36E-07 | 9.92E-10 | -8.63E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.68E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.74E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.53E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 1.06E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.23E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 3.40E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.90E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 6.68E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.68E-02 | 0.00E+00 | 0.00E+00 |

## CHSM54RNs(BLH)-HC - Chint New Energy Technology Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.76E-01 | 1.96E-02 | 1.68E-03 | 3.15E-04 | 1.37E-03 | 4.71E-04 | 9.20E-04 | 1.82E-02 | -4.46E-02 |
| GWP-fossil | kg CO2 eq | 3.74E-01 | 1.96E-02 | 1.52E-03 | 3.08E-04 | 1.37E-03 | 4.70E-04 | 8.88E-04 | 1.82E-02 | -4.40E-02 |
| GWP-biogenic | kg CO2 eq | 1.40E-03 | 2.25E-06 | 1.59E-04 | 6.16E-06 | 9.69E-07 | 3.22E-07 | 3.00E-05 | 1.13E-06 | -5.36E-04 |
| GWP–LUUC | kg CO2 eq | 2.64E-04 | 8.53E-06 | 1.93E-07 | 5.92E-07 | 1.84E-07 | 1.54E-07 | 2.44E-06 | 9.21E-08 | -7.71E-05 |
| ODP | kg CFC11 eq | 3.49E-08 | 3.25E-10 | 2.16E-11 | 4.42E-12 | 2.10E-11 | 9.35E-12 | 1.63E-11 | 6.48E-12 | -3.41E-10 |
| AP | molc H+ eq | 2.41E-03 | 3.28E-04 | 1.24E-05 | 1.65E-06 | 1.23E-05 | 1.47E-06 | 4.94E-06 | 4.85E-06 | -4.06E-04 |
| EP-freshwater | kg P eq | 1.39E-04 | 9.73E-07 | 6.02E-08 | 1.87E-07 | 5.80E-08 | 3.14E-08 | 6.84E-07 | 1.53E-07 | -3.45E-05 |
| EP-marine | kg N eq | 6.64E-04 | 8.42E-05 | 5.82E-06 | 3.16E-07 | 5.66E-06 | 4.96E-07 | 1.28E-06 | 3.19E-06 | -5.91E-05 |
| EP-terrestrial | molc N eq | 5.03E-03 | 9.33E-04 | 6.24E-05 | 3.05E-06 | 6.19E-05 | 5.40E-06 | 1.25E-05 | 2.52E-05 | -6.61E-04 |
| POCP | kg NMVOC eq | 1.50E-03 | 2.69E-04 | 1.87E-05 | 1.01E-06 | 1.85E-05 | 2.31E-06 | 4.03E-06 | 6.37E-06 | -1.92E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.33E-05 | 4.01E-08 | 6.13E-10 | 1.68E-09 | 5.26E-10 | 1.50E-09 | 1.73E-09 | 7.27E-10 | -8.46E-06 |
| ADP-fossil[1] | MJ | 4.45E+00 | 2.57E-01 | 1.85E-02 | 5.49E-03 | 1.81E-02 | 6.61E-03 | 1.96E-02 | 4.29E-03 | -5.03E-01 |
| WDP | $m^3$ | 9.08E-02 | 8.41E-04 | 4.99E-05 | 4.40E-02 | 4.36E-05 | 2.71E-05 | 2.02E-04 | 2.74E-04 | -9.91E-03 |
| PM | Disease incidence | 2.89E-08 | 1.05E-09 | 3.48E-10 | 1.87E-11 | 3.46E-10 | 3.70E-11 | 5.41E-11 | 2.49E-11 | -4.98E-09 |
| IRP | kBq U235 eq. | 2.59E-02 | 2.17E-04 | 2.16E-05 | 1.12E-04 | 2.10E-05 | 8.47E-06 | 4.76E-04 | 5.11E-06 | -3.91E-03 |
| ETP-fw | CTUe | 3.03E+00 | 5.69E-02 | 3.14E-03 | 4.09E-03 | 2.56E-03 | 1.77E-03 | 2.61E-03 | 2.04E-01 | -7.54E-01 |
| HTP-c | CTUh | 1.05E-09 | 1.06E-10 | 5.53E-12 | 1.05E-11 | 5.31E-12 | 3.29E-12 | 2.18E-12 | 4.64E-12 | -6.45E-10 |
| HTP-nc | CTUh | 6.12E-09 | 1.13E-10 | 3.23E-12 | 1.72E-11 | 2.34E-12 | 4.12E-12 | 5.94E-12 | 4.13E-10 | -1.84E-09 |
| SQP | Dimensionless | 1.68E+00 | 8.88E-02 | 1.58E-03 | 1.30E-03 | 1.33E-03 | 3.93E-03 | 5.37E-03 | 2.51E-03 | -2.54E-01 |
| **Parameter** | **Unit** | **A1-A3** | **A4** | **A5** | **B2** | **C1** | **C2** | **C3** | **C4** | **D** |
| RPEE | MJ | 4.37E-01 | 2.99E-03 | 2.30E-04 | 9.56E-04 | 2.21E-04 | 1.08E-04 | 4.23E-03 | 1.05E-04 | -8.39E-02 |
| RPEM | MJ | 3.23E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.69E-01 | 2.99E-03 | 2.30E-04 | 9.56E-04 | 2.21E-04 | 1.08E-04 | 4.23E-03 | 1.05E-04 | -8.39E-02 |
| NRPE | MJ | 4.40E+00 | 2.57E-01 | 1.85E-02 | 5.49E-03 | 1.81E-02 | 6.61E-03 | 1.96E-02 | 4.29E-03 | -5.03E-01 |
| NRPM | MJ | 5.08E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.45E+00 | 2.57E-01 | 1.85E-02 | 5.49E-03 | 1.81E-02 | 6.61E-03 | 1.96E-02 | 4.29E-03 | -5.03E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.55E-03 | 2.73E-05 | 1.57E-06 | 1.03E-03 | 1.68E-06 | 9.05E-07 | 1.64E-05 | 8.47E-06 | -4.22E-04 |
| HW | kg | 6.79E-04 | 5.02E-06 | 1.69E-06 | 3.86E-07 | 1.77E-07 | 1.64E-07 | 5.98E-07 | 2.62E-04 | -1.57E-03 |
| NHW | kg | 2.13E-02 | 6.50E-03 | 1.05E-04 | 4.45E-05 | 1.18E-05 | 3.14E-04 | 7.32E-03 | 5.42E-03 | -2.55E-03 |
| RW | kg | 6.41E-06 | 5.36E-08 | 5.47E-09 | 2.88E-08 | 5.32E-09 | 2.11E-09 | 1.23E-07 | 1.26E-09 | -9.88E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.80E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.76E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.01E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 9.27E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.96E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 2.85E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.68E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 5.60E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.19E-02 | 0.00E+00 | 0.00E+00 |

## CHSM54RNs(DG)/F-BH - Chint New Energy Technology Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.67E-01 | 2.17E-02 | 1.72E-03 | 3.08E-04 | 1.37E-03 | 5.24E-04 | 1.02E-03 | 1.20E-02 | -4.15E-02 |
| GWP-fossil | kg CO2 eq | 3.65E-01 | 2.17E-02 | 1.57E-03 | 3.01E-04 | 1.37E-03 | 5.23E-04 | 9.88E-04 | 1.20E-02 | -4.09E-02 |
| GWP-biogenic | kg CO2 eq | 1.23E-03 | 2.49E-06 | 1.55E-04 | 6.03E-06 | 9.69E-07 | 3.59E-07 | 3.33E-05 | 8.39E-07 | -5.40E-04 |
| GWP–LUUC | kg CO2 eq | 2.56E-04 | 9.44E-06 | 1.93E-07 | 5.79E-07 | 1.84E-07 | 1.71E-07 | 2.71E-06 | 6.34E-08 | -7.22E-05 |
| ODP | kg CFC11 eq | 6.65E-09 | 3.60E-10 | 2.16E-11 | 4.32E-12 | 2.10E-11 | 1.04E-11 | 1.82E-11 | 4.89E-12 | -3.12E-10 |
| AP | molc H+ eq | 2.33E-03 | 3.63E-04 | 1.24E-05 | 1.61E-06 | 1.23E-05 | 1.64E-06 | 5.50E-06 | 3.30E-06 | -3.51E-04 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| EP-freshwater | kg P eq | 1.29E-04 | 1.08E-06 | 6.04E-08 | 1.83E-07 | 5.80E-08 | 3.49E-08 | 7.61E-07 | 1.01E-07 | -2.99E-05 |
| EP-marine | kg N eq | 6.54E-04 | 9.32E-05 | 5.85E-06 | 3.09E-07 | 5.66E-06 | 5.52E-07 | 1.42E-06 | 2.14E-06 | -5.46E-05 |
| EP-terrestrial | molc N eq | 4.98E-03 | 1.03E-03 | 6.25E-05 | 2.99E-06 | 6.19E-05 | 6.00E-06 | 1.39E-05 | 1.71E-05 | -6.08E-04 |
| POCP | kg NMVOC eq | 1.44E-03 | 2.98E-04 | 1.87E-05 | 9.88E-07 | 1.85E-05 | 2.56E-06 | 4.49E-06 | 4.39E-06 | -1.76E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.20E-05 | 4.44E-08 | 6.15E-10 | 1.64E-09 | 5.26E-10 | 1.67E-09 | 1.92E-09 | 5.02E-10 | -7.83E-06 |
| ADP-fossil[1] | MJ | 4.25E+00 | 2.85E-01 | 1.85E-02 | 5.37E-03 | 1.81E-02 | 7.35E-03 | 2.18E-02 | 3.24E-03 | -4.60E-01 |
| WDP | m³ | 8.69E-02 | 9.31E-04 | 5.14E-05 | 4.30E-02 | 4.36E-05 | 3.01E-05 | 2.25E-04 | 1.81E-04 | -8.94E-03 |
| PM | Disease incidence | 2.87E-08 | 1.16E-09 | 3.48E-10 | 1.83E-11 | 3.46E-10 | 4.11E-11 | 6.01E-11 | 1.90E-11 | -4.69E-09 |
| IRP | kBq U235 eq. | 2.49E-02 | 2.40E-04 | 2.16E-05 | 1.10E-04 | 2.10E-05 | 9.43E-06 | 5.29E-04 | 3.85E-06 | -3.29E-03 |
| ETP-fw | CTUe | 2.92E+00 | 6.30E-02 | 3.24E-03 | 4.00E-03 | 2.56E-03 | 1.97E-03 | 2.90E-03 | 1.39E-01 | -6.97E-01 |
| HTP-c | CTUh | 1.01E-09 | 1.17E-10 | 5.54E-12 | 1.03E-11 | 5.31E-12 | 3.66E-12 | 2.42E-12 | 3.12E-12 | -6.23E-10 |
| HTP-nc | CTUh | 5.13E-09 | 1.25E-10 | 3.37E-12 | 1.68E-11 | 2.34E-12 | 4.58E-12 | 6.61E-12 | 2.71E-10 | -1.43E-09 |
| SQP | Dimensionless | 1.64E+00 | 9.83E-02 | 1.58E-03 | 1.27E-03 | 1.33E-03 | 4.37E-03 | 5.97E-03 | 2.50E-03 | -2.27E-01 |
| Parameter | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
| RPEE | MJ | 4.24E-01 | 3.31E-03 | 2.30E-04 | 9.35E-04 | 2.21E-04 | 1.21E-04 | 4.71E-03 | 7.91E-05 | -7.46E-02 |
| RPEM | MJ | 3.16E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.56E-01 | 3.31E-03 | 2.30E-04 | 9.35E-04 | 2.21E-04 | 1.21E-04 | 4.71E-03 | 7.91E-05 | -7.46E-02 |
| NRPE | MJ | 4.24E+00 | 2.85E-01 | 1.85E-02 | 5.37E-03 | 1.81E-02 | 7.35E-03 | 2.18E-02 | 3.24E-03 | -4.60E-01 |
| NRPM | MJ | 9.79E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.25E+00 | 2.85E-01 | 1.85E-02 | 5.37E-03 | 1.81E-02 | 7.35E-03 | 2.18E-02 | 3.24E-03 | -4.60E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.46E-03 | 3.02E-05 | 1.59E-06 | 1.01E-03 | 1.68E-06 | 1.01E-06 | 1.82E-05 | 5.69E-06 | -3.78E-04 |
| HW | kg | 6.62E-04 | 5.56E-06 | 2.09E-06 | 3.77E-07 | 1.77E-07 | 1.82E-07 | 6.65E-07 | 1.74E-04 | -1.89E-03 |
| NHW | kg | 2.13E-02 | 7.20E-03 | 1.14E-04 | 4.35E-05 | 1.18E-05 | 3.49E-04 | 8.15E-03 | 6.34E-03 | -2.56E-03 |
| RW | kg | 6.15E-06 | 5.93E-08 | 5.47E-09 | 2.82E-08 | 5.32E-09 | 2.34E-09 | 1.37E-07 | 9.43E-10 | -8.26E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.76E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.89E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.58E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 1.12E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.92E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 3.63E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.76E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 7.13E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.41E-02 | 0.00E+00 | 0.00E+00 |

## CHSM54RNs(DGT)(BLH)/F-BH - Chint New Energy Technology Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.73E-01 | 2.21E-02 | 1.73E-03 | 3.11E-04 | 1.37E-03 | 5.34E-04 | 1.04E-03 | 1.32E-02 | -4.23E-02 |
| GWP-fossil | kg CO2 eq | 3.71E-01 | 2.21E-02 | 1.57E-03 | 3.05E-04 | 1.37E-03 | 5.33E-04 | 1.01E-03 | 1.32E-02 | -4.17E-02 |
| GWP-biogenic | kg CO2 eq | 1.17E-03 | 2.53E-06 | 1.57E-04 | 6.09E-06 | 9.69E-07 | 3.65E-07 | 3.40E-05 | 8.95E-07 | -5.52E-04 |
| GWP–LUUC | kg CO2 eq | 2.61E-04 | 9.62E-06 | 1.93E-07 | 5.85E-07 | 1.84E-07 | 1.74E-07 | 2.76E-06 | 6.89E-08 | -7.35E-05 |
| ODP | kg CFC11 eq | 6.78E-09 | 3.66E-10 | 2.16E-11 | 4.37E-12 | 2.10E-11 | 1.06E-11 | 1.85E-11 | 5.24E-12 | -3.19E-10 |
| AP | molc H+ eq | 2.36E-03 | 3.70E-04 | 1.24E-05 | 1.63E-06 | 1.23E-05 | 1.67E-06 | 5.60E-06 | 3.60E-06 | -3.58E-04 |
| EP-freshwater | kg P eq | 1.31E-04 | 1.10E-06 | 6.04E-08 | 1.85E-07 | 5.80E-08 | 3.56E-08 | 7.75E-07 | 1.11E-07 | -3.05E-05 |
| EP-marine | kg N eq | 6.63E-04 | 9.49E-05 | 5.85E-06 | 3.13E-07 | 5.66E-06 | 5.62E-07 | 1.45E-06 | 2.34E-06 | -5.56E-05 |
| EP-terrestrial | molc N eq | 5.06E-03 | 1.05E-03 | 6.25E-05 | 3.02E-06 | 6.19E-05 | 6.11E-06 | 1.41E-05 | 1.86E-05 | -6.18E-04 |
| POCP | kg NMVOC eq | 1.47E-03 | 3.04E-04 | 1.87E-05 | 9.99E-07 | 1.85E-05 | 2.61E-06 | 4.57E-06 | 4.78E-06 | -1.79E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.22E-05 | 4.53E-08 | 6.16E-10 | 1.66E-09 | 5.26E-10 | 1.70E-09 | 1.96E-09 | 5.45E-10 | -7.94E-06 |
| ADP-fossil[1] | MJ | 4.34E+00 | 2.90E-01 | 1.85E-02 | 5.43E-03 | 1.81E-02 | 7.49E-03 | 2.22E-02 | 3.47E-03 | -4.70E-01 |
| WDP | m³ | 8.84E-02 | 9.48E-04 | 5.15E-05 | 4.35E-02 | 4.36E-05 | 3.07E-05 | 2.29E-04 | 1.99E-04 | -9.11E-03 |
| PM | Disease incidence | 2.91E-08 | 1.18E-09 | 3.48E-10 | 1.85E-11 | 3.46E-10 | 4.19E-11 | 6.13E-11 | 2.03E-11 | -4.76E-09 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| IRP | kBq U235 eq. | 2.53E-02 | 2.45E-04 | 2.16E-05 | 1.11E-04 | 2.10E-05 | 9.60E-06 | 5.39E-04 | 4.11E-06 | -3.41E-03 |
| ETP-fw | CTUe | 2.96E+00 | 6.42E-02 | 3.25E-03 | 4.04E-03 | 2.56E-03 | 2.01E-03 | 2.95E-03 | 1.51E-01 | -7.07E-01 |
| HTP-c | CTUh | 1.02E-09 | 1.20E-10 | 5.54E-12 | 1.04E-11 | 5.31E-12 | 3.72E-12 | 2.47E-12 | 3.41E-12 | -6.31E-10 |
| HTP-nc | CTUh | 5.23E-09 | 1.27E-10 | 3.38E-12 | 1.70E-11 | 2.34E-12 | 4.67E-12 | 6.73E-12 | 2.98E-10 | -1.46E-09 |
| SQP | Dimensionless | 1.68E+00 | 1.00E-01 | 1.59E-03 | 1.28E-03 | 1.33E-03 | 4.45E-03 | 6.08E-03 | 2.57E-03 | -2.31E-01 |
| **Parameter** | **Unit** | **A1-A3** | **A4** | **A5** | **B2** | **C1** | **C2** | **C3** | **C4** | **D** |
| RPEE | MJ | 4.32E-01 | 3.37E-03 | 2.30E-04 | 9.46E-04 | 2.21E-04 | 1.23E-04 | 4.80E-03 | 8.44E-05 | -7.65E-02 |
| RPEM | MJ | 3.19E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.64E-01 | 3.37E-03 | 2.30E-04 | 9.46E-04 | 2.21E-04 | 1.23E-04 | 4.80E-03 | 8.44E-05 | -7.65E-02 |
| NRPE | MJ | 4.33E+00 | 2.90E-01 | 1.85E-02 | 5.43E-03 | 1.81E-02 | 7.49E-03 | 2.22E-02 | 3.47E-03 | -4.70E-01 |
| NRPM | MJ | 9.90E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.34E+00 | 2.90E-01 | 1.85E-02 | 5.43E-03 | 1.81E-02 | 7.49E-03 | 2.22E-02 | 3.47E-03 | -4.70E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.50E-03 | 3.07E-05 | 1.59E-06 | 1.02E-03 | 1.68E-06 | 1.02E-06 | 1.86E-05 | 6.27E-06 | -3.86E-04 |
| HW | kg | 6.71E-04 | 5.66E-06 | 2.12E-06 | 3.81E-07 | 1.77E-07 | 1.85E-07 | 6.78E-07 | 1.90E-04 | -1.91E-03 |
| NHW | kg | 2.17E-02 | 7.33E-03 | 1.15E-04 | 4.40E-05 | 1.18E-05 | 3.55E-04 | 8.30E-03 | 6.42E-03 | -2.60E-03 |
| RW | kg | 6.25E-06 | 6.04E-08 | 5.47E-09 | 2.85E-08 | 5.32E-09 | 2.39E-09 | 1.40E-07 | 1.01E-09 | -8.59E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.78E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.95E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.62E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 1.13E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.30E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 3.67E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.93E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 7.21E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.74E-02 | 0.00E+00 | 0.00E+00 |

## CHSM54RNs-HC - Chint New Energy Technology Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.76E-01 | 1.96E-02 | 1.68E-03 | 3.15E-04 | 1.37E-03 | 4.71E-04 | 9.20E-04 | 1.82E-02 | -4.46E-02 |
| GWP-fossil | kg CO2 eq | 3.74E-01 | 1.96E-02 | 1.52E-03 | 3.08E-04 | 1.37E-03 | 4.70E-04 | 8.88E-04 | 1.82E-02 | -4.40E-02 |
| GWP-biogenic | kg CO2 eq | 1.40E-03 | 2.25E-06 | 1.59E-04 | 6.16E-06 | 9.69E-07 | 3.22E-07 | 3.00E-05 | 1.13E-06 | -5.36E-04 |
| GWP–LUUC | kg CO2 eq | 2.64E-04 | 8.53E-06 | 1.93E-07 | 5.92E-07 | 1.84E-07 | 1.54E-07 | 2.44E-06 | 9.21E-08 | -7.71E-05 |
| ODP | kg CFC11 eq | 3.49E-08 | 3.25E-10 | 2.16E-11 | 4.42E-12 | 2.10E-11 | 9.35E-12 | 1.63E-11 | 6.48E-12 | -3.41E-10 |
| AP | molc H+ eq | 2.41E-03 | 3.28E-04 | 1.24E-05 | 1.65E-06 | 1.23E-05 | 1.47E-06 | 4.94E-06 | 4.85E-06 | -4.06E-04 |
| EP-freshwater | kg P eq | 1.39E-04 | 9.73E-07 | 6.02E-08 | 1.87E-07 | 5.80E-08 | 3.14E-08 | 6.84E-07 | 1.53E-07 | -3.45E-05 |
| EP-marine | kg N eq | 6.64E-04 | 8.42E-05 | 5.82E-06 | 3.16E-07 | 5.66E-06 | 4.96E-07 | 1.28E-06 | 3.19E-06 | -5.91E-05 |
| EP-terrestrial | molc N eq | 5.03E-03 | 9.33E-04 | 6.24E-05 | 3.05E-06 | 6.19E-05 | 5.40E-06 | 1.25E-05 | 2.52E-05 | -6.61E-04 |
| POCP | kg NMVOC eq | 1.50E-03 | 2.69E-04 | 1.87E-05 | 1.01E-06 | 1.85E-05 | 2.31E-06 | 4.03E-06 | 6.37E-06 | -1.92E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.33E-05 | 4.01E-08 | 6.13E-10 | 1.68E-09 | 5.26E-10 | 1.50E-09 | 1.73E-09 | 7.27E-10 | -8.46E-06 |
| ADP-fossil[1] | MJ | 4.45E+00 | 2.57E-01 | 1.85E-02 | 5.49E-03 | 1.81E-02 | 6.61E-03 | 1.96E-02 | 4.29E-03 | -5.03E-01 |
| WDP | $m^3$ | 9.08E-02 | 8.41E-04 | 4.99E-05 | 4.40E-02 | 4.36E-05 | 2.71E-05 | 2.02E-04 | 2.74E-04 | -9.91E-03 |
| PM | Disease incidence | 2.89E-08 | 1.05E-09 | 3.48E-10 | 1.87E-11 | 3.46E-10 | 3.70E-11 | 5.41E-11 | 2.49E-11 | -4.98E-09 |
| IRP | kBq U235 eq. | 2.59E-02 | 2.17E-04 | 2.16E-05 | 1.12E-04 | 2.10E-05 | 8.47E-06 | 4.76E-04 | 5.11E-06 | -3.91E-03 |
| ETP-fw | CTUe | 3.03E+00 | 5.69E-02 | 3.14E-03 | 4.09E-03 | 2.56E-03 | 1.77E-03 | 2.61E-03 | 2.04E-01 | -7.54E-01 |
| HTP-c | CTUh | 1.05E-09 | 1.06E-10 | 5.53E-12 | 1.05E-11 | 5.31E-12 | 3.29E-12 | 2.18E-12 | 4.64E-12 | -6.45E-10 |
| HTP-nc | CTUh | 6.12E-09 | 1.13E-10 | 3.23E-12 | 1.72E-11 | 2.34E-12 | 4.12E-12 | 5.94E-12 | 4.13E-10 | -1.84E-09 |
| SQP | Dimensionless | 1.68E+00 | 8.88E-02 | 1.58E-03 | 1.30E-03 | 1.33E-03 | 3.93E-03 | 5.37E-03 | 2.51E-03 | -2.54E-01 |
| Parameter | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
| RPEE | MJ | 4.37E-01 | 2.99E-03 | 2.30E-04 | 9.56E-04 | 2.21E-04 | 1.08E-04 | 4.23E-03 | 1.05E-04 | -8.39E-02 |
| RPEM | MJ | 3.23E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| TPE | MJ | 4.69E-01 | 2.99E-03 | 2.30E-04 | 9.56E-04 | 2.21E-04 | 1.08E-04 | 4.23E-03 | 1.05E-04 | -8.39E-02 |
| NRPE | MJ | 4.40E+00 | 2.57E-01 | 1.85E-02 | 5.49E-03 | 1.81E-02 | 6.61E-03 | 1.96E-02 | 4.29E-03 | -5.03E-01 |
| NRPM | MJ | 5.08E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.45E+00 | 2.57E-01 | 1.85E-02 | 5.49E-03 | 1.81E-02 | 6.61E-03 | 1.96E-02 | 4.29E-03 | -5.03E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.55E-03 | 2.73E-05 | 1.57E-06 | 1.03E-03 | 1.68E-06 | 9.05E-07 | 1.64E-05 | 8.47E-06 | -4.22E-04 |
| HW | kg | 6.79E-04 | 5.02E-06 | 1.69E-06 | 3.86E-07 | 1.77E-07 | 1.64E-07 | 5.98E-07 | 2.62E-04 | -1.57E-03 |
| NHW | kg | 2.13E-02 | 6.50E-03 | 1.05E-04 | 4.45E-05 | 1.18E-05 | 3.14E-04 | 7.32E-03 | 5.42E-03 | -2.55E-03 |
| RW | kg | 6.41E-06 | 5.36E-08 | 5.47E-09 | 2.88E-08 | 5.32E-09 | 2.11E-09 | 1.23E-07 | 1.26E-09 | -9.88E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.80E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.76E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.01E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 9.27E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.96E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 2.85E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.68E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 5.60E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.19E-02 | 0.00E+00 | 0.00E+00 |

## CHSM60RNs(DG)(BLH)/F-BH - Chint New Energy Technology Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.69E-01 | 2.16E-02 | 1.71E-03 | 3.11E-04 | 1.37E-03 | 5.20E-04 | 1.02E-03 | 1.29E-02 | -4.31E-02 |
| GWP-fossil | kg CO2 eq | 3.68E-01 | 2.15E-02 | 1.55E-03 | 3.04E-04 | 1.37E-03 | 5.20E-04 | 9.81E-04 | 1.29E-02 | -4.25E-02 |
| GWP-biogenic | kg CO2 eq | 1.36E-03 | 2.47E-06 | 1.52E-04 | 6.09E-06 | 9.69E-07 | 3.56E-07 | 3.31E-05 | 8.84E-07 | -5.43E-04 |
| GWP–LUUC | kg CO2 eq | 2.60E-04 | 9.37E-06 | 1.93E-07 | 5.84E-07 | 1.84E-07 | 1.70E-07 | 2.70E-06 | 6.77E-08 | -7.55E-05 |
| ODP | kg CFC11 eq | 6.55E-09 | 3.57E-10 | 2.15E-11 | 4.36E-12 | 2.10E-11 | 1.03E-11 | 1.81E-11 | 5.14E-12 | -3.24E-10 |
| AP | molc H+ eq | 2.33E-03 | 3.60E-04 | 1.24E-05 | 1.63E-06 | 1.23E-05 | 1.63E-06 | 5.46E-06 | 3.53E-06 | -3.58E-04 |
| EP-freshwater | kg P eq | 1.29E-04 | 1.07E-06 | 6.03E-08 | 1.85E-07 | 5.80E-08 | 3.47E-08 | 7.56E-07 | 1.09E-07 | -3.04E-05 |
| EP-marine | kg N eq | 6.58E-04 | 9.25E-05 | 5.84E-06 | 3.13E-07 | 5.66E-06 | 5.48E-07 | 1.41E-06 | 2.30E-06 | -5.62E-05 |
| EP-terrestrial | molc N eq | 5.00E-03 | 1.02E-03 | 6.25E-05 | 3.02E-06 | 6.19E-05 | 5.96E-06 | 1.38E-05 | 1.83E-05 | -6.24E-04 |
| POCP | kg NMVOC eq | 1.45E-03 | 2.96E-04 | 1.87E-05 | 9.98E-07 | 1.85E-05 | 2.55E-06 | 4.46E-06 | 4.69E-06 | -1.81E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.20E-05 | 4.41E-08 | 6.11E-10 | 1.66E-09 | 5.26E-10 | 1.66E-09 | 1.91E-09 | 5.36E-10 | -7.85E-06 |
| ADP-fossil[1] | MJ | 4.30E+00 | 2.82E-01 | 1.85E-02 | 5.42E-03 | 1.81E-02 | 7.30E-03 | 2.17E-02 | 3.40E-03 | -4.78E-01 |
| WDP | $m^3$ | 8.74E-02 | 9.23E-04 | 5.09E-05 | 4.34E-02 | 4.36E-05 | 2.99E-05 | 2.24E-04 | 1.95E-04 | -9.21E-03 |
| PM | Disease incidence | 2.89E-08 | 1.15E-09 | 3.48E-10 | 1.85E-11 | 3.46E-10 | 4.08E-11 | 5.97E-11 | 1.99E-11 | -4.89E-09 |
| IRP | kBq U235 eq. | 2.50E-02 | 2.38E-04 | 2.16E-05 | 1.11E-04 | 2.10E-05 | 9.36E-06 | 5.26E-04 | 4.04E-06 | -3.43E-03 |
| ETP-fw | CTUe | 2.94E+00 | 6.25E-02 | 3.20E-03 | 4.04E-03 | 2.56E-03 | 1.96E-03 | 2.88E-03 | 1.49E-01 | -7.06E-01 |
| HTP-c | CTUh | 1.02E-09 | 1.16E-10 | 5.53E-12 | 1.04E-11 | 5.31E-12 | 3.63E-12 | 2.41E-12 | 3.35E-12 | -6.37E-10 |
| HTP-nc | CTUh | 5.09E-09 | 1.24E-10 | 3.32E-12 | 1.70E-11 | 2.34E-12 | 4.55E-12 | 6.57E-12 | 2.93E-10 | -1.41E-09 |
| SQP | Dimensionless | 1.64E+00 | 9.75E-02 | 1.57E-03 | 1.28E-03 | 1.33E-03 | 4.34E-03 | 5.93E-03 | 2.51E-03 | -2.31E-01 |
| **Parameter** | **Unit** | **A1-A3** | **A4** | **A5** | **B2** | **C1** | **C2** | **C3** | **C4** | **D** |
| RPEE | MJ | 4.27E-01 | 3.28E-03 | 2.30E-04 | 9.45E-04 | 2.21E-04 | 1.20E-04 | 4.68E-03 | 8.30E-05 | -7.71E-02 |
| RPEM | MJ | 3.03E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.57E-01 | 3.28E-03 | 2.30E-04 | 9.45E-04 | 2.21E-04 | 1.20E-04 | 4.68E-03 | 8.30E-05 | -7.71E-02 |
| NRPE | MJ | 4.29E+00 | 2.82E-01 | 1.85E-02 | 5.42E-03 | 1.81E-02 | 7.30E-03 | 2.17E-02 | 3.40E-03 | -4.78E-01 |
| NRPM | MJ | 8.95E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.30E+00 | 2.82E-01 | 1.85E-02 | 5.42E-03 | 1.81E-02 | 7.30E-03 | 2.17E-02 | 3.40E-03 | -4.78E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.48E-03 | 2.99E-05 | 1.59E-06 | 1.02E-03 | 1.68E-06 | 9.99E-07 | 1.81E-05 | 6.11E-06 | -3.90E-04 |
| HW | kg | 6.74E-04 | 5.51E-06 | 1.97E-06 | 3.81E-07 | 1.77E-07 | 1.81E-07 | 6.61E-07 | 1.87E-04 | -1.86E-03 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NHW | kg | 2.14E-02 | 7.14E-03 | 1.10E-04 | 4.39E-05 | 1.18E-05 | 3.47E-04 | 8.09E-03 | 6.24E-03 | -2.60E-03 |
| RW | kg | 6.19E-06 | 5.88E-08 | 5.46E-09 | 2.85E-08 | 5.32E-09 | 2.33E-09 | 1.36E-07 | 9.92E-10 | -8.63E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.68E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.74E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.53E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 1.06E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.23E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 3.40E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.90E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 6.68E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.68E-02 | 0.00E+00 | 0.00E+00 |

## CHSM60RNs(DG)/F-BH - Chint New Energy Technology Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.66E-01 | 2.13E-02 | 1.70E-03 | 3.08E-04 | 1.37E-03 | 5.15E-04 | 1.01E-03 | 1.28E-02 | -4.27E-02 |
| GWP-fossil | kg CO2 eq | 3.64E-01 | 2.13E-02 | 1.55E-03 | 3.01E-04 | 1.37E-03 | 5.15E-04 | 9.71E-04 | 1.28E-02 | -4.21E-02 |
| GWP-biogenic | kg CO2 eq | 1.35E-03 | 2.44E-06 | 1.50E-04 | 6.03E-06 | 9.69E-07 | 3.53E-07 | 3.28E-05 | 8.75E-07 | -5.38E-04 |
| GWP–LUUC | kg CO2 eq | 2.58E-04 | 9.27E-06 | 1.93E-07 | 5.79E-07 | 1.84E-07 | 1.68E-07 | 2.67E-06 | 6.70E-08 | -7.47E-05 |
| ODP | kg CFC11 eq | 6.48E-09 | 3.53E-10 | 2.15E-11 | 4.32E-12 | 2.10E-11 | 1.02E-11 | 1.79E-11 | 5.09E-12 | -3.21E-10 |
| AP | molc H+ eq | 2.31E-03 | 3.57E-04 | 1.24E-05 | 1.61E-06 | 1.23E-05 | 1.61E-06 | 5.41E-06 | 3.50E-06 | -3.54E-04 |
| EP-freshwater | kg P eq | 1.28E-04 | 1.06E-06 | 6.03E-08 | 1.83E-07 | 5.80E-08 | 3.43E-08 | 7.48E-07 | 1.08E-07 | -3.01E-05 |
| EP-marine | kg N eq | 6.51E-04 | 9.16E-05 | 5.84E-06 | 3.09E-07 | 5.66E-06 | 5.43E-07 | 1.40E-06 | 2.27E-06 | -5.57E-05 |
| EP-terrestrial | molc N eq | 4.95E-03 | 1.01E-03 | 6.25E-05 | 2.99E-06 | 6.19E-05 | 5.90E-06 | 1.37E-05 | 1.81E-05 | -6.18E-04 |
| POCP | kg NMVOC eq | 1.44E-03 | 2.93E-04 | 1.87E-05 | 9.88E-07 | 1.85E-05 | 2.52E-06 | 4.41E-06 | 4.64E-06 | -1.80E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.19E-05 | 4.36E-08 | 6.10E-10 | 1.64E-09 | 5.26E-10 | 1.65E-09 | 1.89E-09 | 5.30E-10 | -7.77E-06 |
| ADP-fossil[1] | MJ | 4.26E+00 | 2.80E-01 | 1.85E-02 | 5.37E-03 | 1.81E-02 | 7.23E-03 | 2.15E-02 | 3.37E-03 | -4.73E-01 |
| WDP | m³ | 8.66E-02 | 9.14E-04 | 5.09E-05 | 4.30E-02 | 4.36E-05 | 2.96E-05 | 2.21E-04 | 1.93E-04 | -9.12E-03 |
| PM | Disease incidence | 2.86E-08 | 1.14E-09 | 3.48E-10 | 1.83E-11 | 3.46E-10 | 4.04E-11 | 5.91E-11 | 1.97E-11 | -4.84E-09 |
| IRP | kBq U235 eq. | 2.48E-02 | 2.36E-04 | 2.15E-05 | 1.10E-04 | 2.10E-05 | 9.27E-06 | 5.21E-04 | 4.00E-06 | -3.40E-03 |
| ETP-fw | CTUe | 2.91E+00 | 6.19E-02 | 3.20E-03 | 4.00E-03 | 2.56E-03 | 1.94E-03 | 2.85E-03 | 1.47E-01 | -6.99E-01 |
| HTP-c | CTUh | 1.01E-09 | 1.15E-10 | 5.53E-12 | 1.03E-11 | 5.31E-12 | 3.60E-12 | 2.38E-12 | 3.32E-12 | -6.31E-10 |
| HTP-nc | CTUh | 5.04E-09 | 1.23E-10 | 3.31E-12 | 1.68E-11 | 2.34E-12 | 4.51E-12 | 6.50E-12 | 2.90E-10 | -1.40E-09 |
| SQP | Dimensionless | 1.62E+00 | 9.66E-02 | 1.57E-03 | 1.27E-03 | 1.33E-03 | 4.30E-03 | 5.87E-03 | 2.49E-03 | -2.29E-01 |
| **Parameter** | **Unit** | **A1-A3** | **A4** | **A5** | **B2** | **C1** | **C2** | **C3** | **C4** | **D** |
| RPEE | MJ | 4.23E-01 | 3.25E-03 | 2.30E-04 | 9.35E-04 | 2.21E-04 | 1.19E-04 | 4.63E-03 | 8.22E-05 | -7.64E-02 |
| RPEM | MJ | 3.00E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.53E-01 | 3.25E-03 | 2.30E-04 | 9.35E-04 | 2.21E-04 | 1.19E-04 | 4.63E-03 | 8.22E-05 | -7.64E-02 |
| NRPE | MJ | 4.25E+00 | 2.80E-01 | 1.85E-02 | 5.37E-03 | 1.81E-02 | 7.23E-03 | 2.15E-02 | 3.37E-03 | -4.73E-01 |
| NRPM | MJ | 8.86E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.26E+00 | 2.80E-01 | 1.85E-02 | 5.37E-03 | 1.81E-02 | 7.23E-03 | 2.15E-02 | 3.37E-03 | -4.73E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.45E-03 | 2.96E-05 | 1.59E-06 | 1.01E-03 | 1.68E-06 | 9.90E-07 | 1.79E-05 | 6.05E-06 | -3.87E-04 |
| HW | kg | 6.67E-04 | 5.46E-06 | 1.96E-06 | 3.77E-07 | 1.77E-07 | 1.79E-07 | 6.54E-07 | 1.85E-04 | -1.84E-03 |
| NHW | kg | 2.12E-02 | 7.07E-03 | 1.09E-04 | 4.35E-05 | 1.18E-05 | 3.43E-04 | 8.01E-03 | 6.18E-03 | -2.58E-03 |
| RW | kg | 6.12E-06 | 5.82E-08 | 5.46E-09 | 2.82E-08 | 5.32E-09 | 2.30E-09 | 1.35E-07 | 9.82E-10 | -8.55E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.66E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.69E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.50E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 1.05E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.18E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 3.37E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.88E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 6.61E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.64E-02 | 0.00E+00 | 0.00E+00 |

CHSM60RNs(DGT)(BLH)/F-BH - Chint New Energy Technology Co., Ltd. (per functional unit – 1Wp)

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq | 3.69E-01 | 2.16E-02 | 1.71E-03 | 3.11E-04 | 1.37E-03 | 5.20E-04 | 1.02E-03 | 1.29E-02 | -4.31E-02 |
| GWP-fossil | kg CO2 eq | 3.68E-01 | 2.15E-02 | 1.55E-03 | 3.04E-04 | 1.37E-03 | 5.20E-04 | 9.81E-04 | 1.29E-02 | -4.25E-02 |
| GWP-biogenic | kg CO2 eq | 1.36E-03 | 2.47E-06 | 1.52E-04 | 6.09E-06 | 9.69E-07 | 3.56E-07 | 3.31E-05 | 8.84E-07 | -5.43E-04 |
| GWP–LUUC | kg CO2 eq | 2.60E-04 | 9.37E-06 | 1.93E-07 | 5.84E-07 | 1.84E-07 | 1.70E-07 | 2.70E-06 | 6.77E-08 | -7.55E-05 |
| ODP | kg CFC11 eq | 6.55E-09 | 3.57E-10 | 2.15E-11 | 4.36E-12 | 2.10E-11 | 1.03E-11 | 1.81E-11 | 5.14E-12 | -3.24E-10 |
| AP | molc H+ eq | 2.33E-03 | 3.60E-04 | 1.24E-05 | 1.63E-06 | 1.23E-05 | 1.63E-06 | 5.46E-06 | 3.53E-06 | -3.58E-04 |
| EP-freshwater | kg P eq | 1.29E-04 | 1.07E-06 | 6.03E-08 | 1.85E-07 | 5.80E-08 | 3.47E-08 | 7.56E-07 | 1.09E-07 | -3.04E-05 |
| EP-marine | kg N eq | 6.58E-04 | 9.25E-05 | 5.84E-06 | 3.13E-07 | 5.66E-06 | 5.48E-07 | 1.41E-06 | 2.30E-06 | -5.62E-05 |
| EP-terrestrial | molc N eq | 5.00E-03 | 1.02E-03 | 6.25E-05 | 3.02E-06 | 6.19E-05 | 5.96E-06 | 1.38E-05 | 1.83E-05 | -6.24E-04 |
| POCP | kg NMVOC eq | 1.45E-03 | 2.96E-04 | 1.87E-05 | 9.98E-07 | 1.85E-05 | 2.55E-06 | 4.46E-06 | 4.69E-06 | -1.81E-04 |
| ADP-M&M[1] | kg Sb-Eq | 1.20E-05 | 4.41E-08 | 6.11E-10 | 1.66E-09 | 5.26E-10 | 1.66E-09 | 1.91E-09 | 5.36E-10 | -7.85E-06 |
| ADP-fossil[1] | MJ | 4.30E+00 | 2.82E-01 | 1.85E-02 | 5.42E-03 | 1.81E-02 | 7.30E-03 | 2.17E-02 | 3.40E-03 | -4.78E-01 |
| WDP | m³ | 8.74E-02 | 9.23E-04 | 5.09E-05 | 4.34E-02 | 4.36E-05 | 2.99E-05 | 2.24E-04 | 1.95E-04 | -9.21E-03 |
| PM | Disease incidence | 2.89E-08 | 1.15E-09 | 3.48E-10 | 1.85E-11 | 3.46E-10 | 4.08E-11 | 5.97E-11 | 1.99E-11 | -4.89E-09 |
| IRP | kBq U235 eq. | 2.50E-02 | 2.38E-04 | 2.16E-05 | 1.11E-04 | 2.10E-05 | 9.36E-06 | 5.26E-04 | 4.04E-06 | -3.43E-03 |
| ETP-fw | CTUe | 2.94E+00 | 6.25E-02 | 3.20E-03 | 4.04E-03 | 2.56E-03 | 1.96E-03 | 2.88E-03 | 1.49E-01 | -7.06E-01 |
| HTP-c | CTUh | 1.02E-09 | 1.16E-10 | 5.53E-12 | 1.04E-11 | 5.31E-12 | 3.63E-12 | 2.41E-12 | 3.35E-12 | -6.37E-10 |
| HTP-nc | CTUh | 5.09E-09 | 1.24E-10 | 3.32E-12 | 1.70E-11 | 2.34E-12 | 4.55E-12 | 6.57E-12 | 2.93E-10 | -1.41E-09 |
| SQP | Dimensionless | 1.64E+00 | 9.75E-02 | 1.57E-03 | 1.28E-03 | 1.33E-03 | 4.34E-03 | 5.93E-03 | 2.51E-03 | -2.31E-01 |
| **Parameter** | **Unit** | **A1-A3** | **A4** | **A5** | **B2** | **C1** | **C2** | **C3** | **C4** | **D** |
| RPEE | MJ | 4.27E-01 | 3.28E-03 | 2.30E-04 | 9.45E-04 | 2.21E-04 | 1.20E-04 | 4.68E-03 | 8.30E-05 | -7.71E-02 |
| RPEM | MJ | 3.03E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TPE | MJ | 4.57E-01 | 3.28E-03 | 2.30E-04 | 9.45E-04 | 2.21E-04 | 1.20E-04 | 4.68E-03 | 8.30E-05 | -7.71E-02 |
| NRPE | MJ | 4.29E+00 | 2.82E-01 | 1.85E-02 | 5.42E-03 | 1.81E-02 | 7.30E-03 | 2.17E-02 | 3.40E-03 | -4.78E-01 |
| NRPM | MJ | 8.95E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| TRPE | MJ | 4.30E+00 | 2.82E-01 | 1.85E-02 | 5.42E-03 | 1.81E-02 | 7.30E-03 | 2.17E-02 | 3.40E-03 | -4.78E-01 |
| SM | 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| 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 | 0.00E+00 |
| W | m3 | 2.48E-03 | 2.99E-05 | 1.59E-06 | 1.02E-03 | 1.68E-06 | 9.99E-07 | 1.81E-05 | 6.11E-06 | -3.90E-04 |
| HW | kg | 6.74E-04 | 5.51E-06 | 1.97E-06 | 3.81E-07 | 1.77E-07 | 1.81E-07 | 6.61E-07 | 1.87E-04 | -1.86E-03 |
| NHW | kg | 2.14E-02 | 7.14E-03 | 1.10E-04 | 4.39E-05 | 1.18E-05 | 3.47E-04 | 8.09E-03 | 6.24E-03 | -2.60E-03 |
| RW | kg | 6.19E-06 | 5.88E-08 | 5.46E-09 | 2.85E-08 | 5.32E-09 | 2.33E-09 | 1.36E-07 | 9.92E-10 | -8.63E-07 |
| CR | kg | 0.00E+00 | 0.00E+00 | 1.68E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MR | kg | 0.00E+00 | 0.00E+00 | 4.74E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.53E-02 | 0.00E+00 | 0.00E+00 |
| MER | kg | 0.00E+00 | 0.00E+00 | 1.06E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.23E-03 | 0.00E+00 | 0.00E+00 |
| EEE | MJ | 0.00E+00 | 0.00E+00 | 3.40E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.90E-02 | 0.00E+00 | 0.00E+00 |
| ETE | MJ | 0.00E+00 | 0.00E+00 | 6.68E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.68E-02 | 0.00E+00 | 0.00E+00 |

## EPD results correction factors of various power output ranges

Since each PV modules have a range of output power. Thus, a correction factors are needed if the actual product is deviated from the applied nominal Watt. The correction factor can be calculated by the following formula:

$$correction\ factor = \frac{applied\ nominal\ Watt}{actual\ Watt}$$

Ther impacts for other output power levels can be calculated by multiplying the *correction factor* by *impacts values reported in this EPD*. The example is as follows:

| Output power | 440W | 445W | 450W | 455W | 460W |
|---|---|---|---|---|---|
| Correction factor | 1.023 | 1.011 | 1.000 | 0.989 | 0.978 |

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