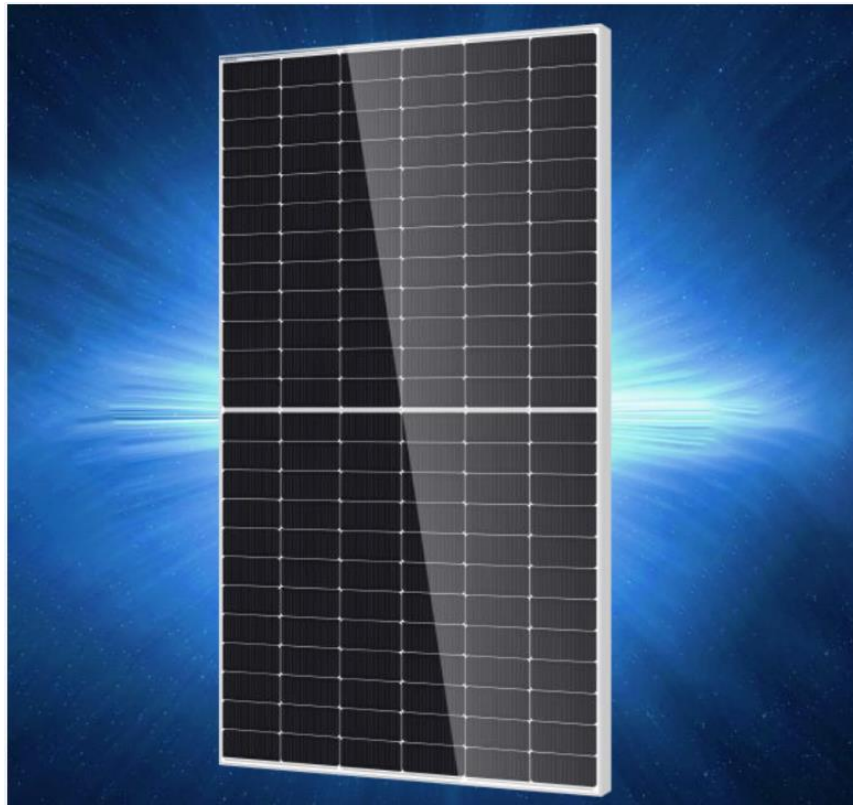


Environmental Product Declaration

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

Infinity modules



Owner of the declaration:
Hengdian Group DMEGC Magnetics Co., Ltd.

Product name:

Infinity modules

Declared unit:
1m² of manufactured photovoltaic module

Product category /PCR:
NPCR 029 2022 Part B for PV modules 1.2

Program holder and publisher:
The Norwegian EPD foundation

Declaration number:
NEPD-9406-9014

Registration number:
NEPD-9406-9014

Issue date: 18/03/2025

Valid to: 17/03/2030

General information

Product:

Infinity modules

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-9406-9014

This declaration is based on Product Category Rules:

NPCR 029 2022 Part B for PV modules 1.2

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 evidence.

Declared unit:

1 m² of manufactured photovoltaic module, with processes at construction and end-of-life stage.

Functional unit:

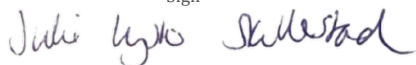
1 Wp of manufactured photovoltaic module, from cradle-to-grave, with activities needed for a study period for a defined reference service life of 30 years (≥80% of the labelled power output).

Verification:

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

internal external

Sign



Julie Lyslo Skullestad

Independent verifier approved by EPD Norway

Owner of the declaration:

Hengdian Group DMEGC Magnetics Co., Ltd

e-mail: allison@dmegc.com.cn

Contact person : Allison Lv/吕梦蕾

Phone number : +86 157 5796 4008

Manufacturer:

Hengdian Group DMEGC Magnetics Co., Ltd.
Hengdian Industrial Area, Dongyang City, Zhejiang
Province China 322118

e-mail: solar@dmegc.com.cn

Place of production:

Sihong and Liangyungang, Jiangsu Province, China

Management system:

ISO 14001, ISO 9001, IEC 62941, OHSAS
18001:2007, ISO 45001

Organisation no:

NL820465148B01

Issue date:

18/03/2025

Valid to:

17/03/2030

Year of study:

2024

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:

Yazid Charkani - Kapstan

Approved



Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

Photovoltaic modules are meant to be installed on roof or stand alone power plants. All the modules included in this EPD are of N -type pv cells.

The EPD includes infinity serie modules.

The characteristics of the included product references are :

Characteristics	unit	M10T-B72HXX	M10T-B78HXX	M10RT-54 HXX (-V)	M10RT-B54 HXX (-U)
Height	m	2.278	2.465	1.762	1.762
Width	m	1.134	1.134	1.134	1.134
Area	m ²	2.58	2.80	2.00	2.00
Wafer size	mm	182*182 /182.2*183.75	182*182 /182.2*183.75	182.2*186.7/182.2*187.5	182.2*186.7/182.2*187.5
Power	Wp	580-600	630-650	440-465	440-465
Bifacial	Y/N	Yes	Yes	No	Yes
Lifetime	Year	30	30	30	30
Yearly degradation	%	0.4	0.4	0.4	0.4

Characteristics	unit	M10RT-B54-LU (L)	M10RT-60HXX (-V)	M10RT-B60 HXX (-U)	M10RT-B60 HXX-LU (L)
Height	m	1.762	1.95	1.95	1.95
Width	m	1.134	1.134	1.134	1.134
Area	m ²	2.00	2.21	2.21	2.21
Wafer size	mm	182.2*186.7/182.2*187.5	182.2*186.7/182.2*187.5	182.2*186.7/182.2*187.5	182.2*186.7/182.2*187.5
Power	Wp	440-465	490-515	485-505	485-505
Bifacial	Y/N	Yes	Yes	No	Yes
Lifetime	Year	30	30	30	30
Yearly degradation	%	0.4	0.4	0.4	0.4

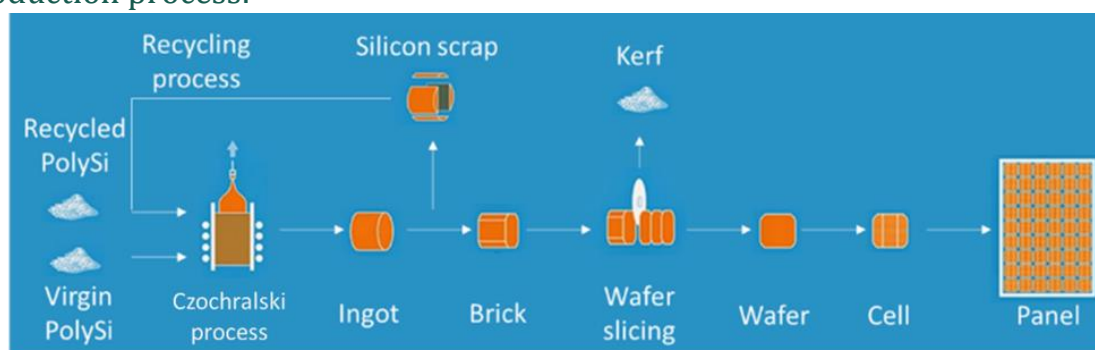
Characteristics	unit	G12RT-B66HXX	G12T-B66HXX
Height	m	2.382	2.384
Width	m	1.134	1.303
Area	m ²	2.701	3.106
Wafer size	mm	182*210	210*210
Power	Wp	610-635	700-725
Bifacial	Y/N	Yes	Yes
Lifetime	Year	30	30
Yearly degradation	%	0.4	0.4

Grouping

Some modules references share many similarities and can only be distinguished by the voltage rate or glass thickness, they have been grouped into a category and the thickest glass value has been kept as a conservative approach.

Grouping		
M10RT-B54HXX -LU(L)	➔	
M10RT-B54HXX -(U)		
M10RT-B60HXX -(U)	➔	
M10RT-B60HXX -LU (L)		
		M10RT-B54HXX
		M10RT-B60HXX

Production process:



Step 1 - PolySi: The raw material used to produce the cells is a high purity silicon called “Solar grade silicon” or “PolySi”.

Step 2 - Ingot: The PolySi is transformed into a monocrystalline ingot by heating up the silicon with a process called “Czochralski process”.

Step 3 - Wafer slicing: the ingot is then cut into bricks and sliced into wafers by diamond wire slicing.

Step 4 - Solar cell: the wafer is transformed into a cell through chemical treatments and wiring.

Step 5 - Solar panel: Solar cells are interconnected to form a complete solar module. This process involves soldering the cells together and encapsulating them between a front sheet (usually made of glass), EVA and a back sheet (here made of polymer). Aluminium frame is used for reinforcement. A junction box is included for electrical connection.

Supply chain

In the PV industry, upstream production stages (mainly polysi and ingot production steps) are energy-intensive, therefore they highly contribute to impact results such as «climate change» or «total energy requirement».

To be the closest to DMEGC supply chain situation and thus the most representative of modules real impact, the specific breakdown of DMEGC suppliers for polysi and ingot to wafer stages have been considered :

Polysi

Region	Breakdown	Electricity grid region	Breakdown
Inner mongolia	48%	Northeast grid (NECG)	48%
Qinghai	7%	Northwest grid (NWG)	7%
Sichuan	26%	Southwest grid (SWG)	26%
Jiangsu	7%	East power grid (ECGC)	7%
Yunnan	0.5%	Southern power grid (CSG)	0.5%
Others	12%	China grid	11.6%

Ingot- to wafer

Region	Breakdown	Electricity grid region	Breakdown
Inner mongolia	42%	Northeast grid (NECG)	42%
Qinghai	13%	Northwest grid (NWG)	13%
Sichuan	18%	Southwest grid (SWG)	18%
Jiangsu	3%	East power grid (ECGC)	3%
Yunnan	6%	Southern power grid (CSG)	6%
Ningxia	2%	Northwest grid (NWG)	2%
Henan	16%	Central grid (CCG)	16%

Product specification:

M10T-B72				
	Materials	KG / FU	KG / DU	%
Production materials	Cells	1.20E-03	2.79E-01	1.1%
	Glass	4.27E-02	9.92E+00	39.6%
	Aluminium	4.26E-03	9.90E-01	3.9%
	EVA	3.50E-03	8.14E-01	3.2%
	Copper	3.08E-04	7.17E-02	0.3%
	PET	0.00E+00	0.00E+00	0.0%
	Tin	4.50E-05	1.05E-02	0.0%
	Junction box	2.08E-04	4.82E-02	0.2%
	Sealant	5.73E-04	1.33E-01	0.5%
Total		5.28E-02	1.23E+01	95.8%
Packaging materials	Pallet	1.78E-03	4.13E-01	1.6%
	Cardboard	5.23E-04	1.22E-01	0.5%
	LDPE	2.59E-05	6.02E-03	>0.1%
	HDPE	2.87E-06	6.67E-04	>0.1%
	Label	4.63E-07	1.08E-04	>0.1%
Total		2.33E-03	5.41E-01	4.2%

M10T-B78				
	Materials	KG / FU	KG / DU	%
Production materials	Cells	1.20E-03	2.79E-01	1.1%
	Glass	4.27E-02	9.92E+00	39.6%
	Aluminium	4.17E-03	9.69E-01	3.9%
	EVA	3.50E-03	8.14E-01	3.2%
	Copper	3.20E-04	7.43E-02	0.3%
	PET	0.00E+00	0.00E+00	0.0%
	Tin	4.66E-05	1.08E-02	0.0%
	Junction box	1.92E-04	4.46E-02	0.2%
	Sealant	5.85E-04	1.36E-01	0.5%
Total		5.27E-02	1.23E+01	95.6%
Packaging materials	Pallet	1.88E-03	4.38E-01	1.7%
	Cardboard	5.09E-04	1.18E-01	0.5%
	LDPE	2.56E-05	5.96E-03	>0.1%
	HDPE	3.08E-06	7.15E-04	>0.1%
	Label	4.27E-07	9.94E-05	>0.1%
Total		2.42E-03	5.63E-01	4.4%

M10RT-54				
	Materials	KG / FU	KG / DU	%
Production materials	Cells	1.16E-03	2.70E-01	1.2%
	Glass	3.41E-02	7.93E+00	35.7%
	Aluminium	4.72E-03	1.10E+00	5.0%
	EVA	3.49E-03	8.13E-01	3.7%
	Copper	3.35E-04	7.80E-02	0.4%
	PET	1.79E-03	4.16E-01	1.9%
	Tin	4.90E-05	1.14E-02	0.1%
	Junction box	2.68E-04	6.23E-02	0.3%
	Sealant	6.13E-04	1.43E-01	0.6%
Total		4.65E-02	1.08E+01	95.3%
Packaging materials	Pallet	1.61E-03	3.75E-01	1.7%
	Cardboard	6.69E-04	1.56E-01	0.7%
	LDPE	2.81E-05	6.53E-03	>0.1%
	HDPE	2.03E-06	4.73E-04	>0.1%
	Label	5.97E-07	1.39E-04	>0.1%
Total		2.31E-03	5.38E-01	4.7%

M10RT-60				
	Materials	KG / FU	KG / DU	%
Production materials	Cells	1.15E-03	2.67E-01	1.2%
	Glass	3.41E-02	7.93E+00	35.8%
	Aluminium	4.83E-03	1.13E+00	5.1%
	EVA	3.32E-03	7.74E-01	3.5%
	Copper	3.13E-04	7.28E-02	0.3%
	PET	1.80E-03	4.19E-01	1.9%
	Tin	5.26E-05	1.22E-02	0.1%
	Junction box	2.46E-04	5.73E-02	0.3%
	Sealant	5.83E-04	1.36E-01	0.6%
Total		4.64E-02	1.08E+01	95.1%
Packaging materials	Pallet	1.73E-03	4.02E-01	1.8%
	Cardboard	6.44E-04	1.50E-01	0.7%
	LDPE	2.94E-05	6.86E-03	>0.1%
	HDPE	4.38E-06	1.02E-03	>0.1%
	Label	6.26E-07	1.46E-04	>0.1%
Total		2.40E-03	5.60E-01	4.9%

M10RT-B54				
	Materials	KG / FU	KG / DU	%
Production materials	Cells	1.16E-03	2.70E-01	1.1%
	Glass	4.26E-02	9.91E+00	39.2%
	Aluminium	4.62E-03	1.07E+00	4.3%
	EVA	3.49E-03	8.13E-01	3.2%
	Copper	3.26E-04	0.08	0.3%
	PET	0.00E+00	0.00E+00	0.0%
	Tin	4.77E-05	0.01	0.0%
	Junction box	2.68E-04	6.23E-02	0.2%
	Sealant	6.48E-04	1.51E-01	0.6%
Total		5.32E-02	1.24E+01	96.0%
Packaging materials	Pallet	1.61E-03	3.75E-01	1.5%
	Cardboard	5.86E-04	1.36E-01	0.5%
	LDPE	2.81E-05	6.53E-03	>0.1%
	HDPE	2.03E-06	4.73E-04	>0.1%
	Label	5.97E-07	1.39E-04	>0.1%
Total		2.23E-03	5.19E-01	4.0%

M10RT-B60				
	Materials	KG / FU	KG / DU	%
Production materials	Cells	1.17E-03	2.67E-01	1.1%
	Glass	4.34E-02	9.92E+00	39.6%
	Aluminium	4.40E-03	1.00E+00	4.0%
	EVA	3.39E-03	7.74E-01	3.1%
	Copper	3.32E-04	7.58E-02	0.3%
	PET	0.00E+00	0.00E+00	0.0%
	Tin	5.58E-05	1.27E-02	0.1%
	Junction box	2.51E-04	5.73E-02	0.2%
	Sealant	6.29E-04	1.44E-01	0.6%
Total		5.36E-02	1.23E+01	95.8%
Packaging materials	Pallet	1.76E-03	4.02E-01	1.6%
	Cardboard	5.72E-04	1.31E-01	0.5%
	LDPE	2.59E-05	5.90E-03	>0.1%
	HDPE	3.14E-06	7.16E-04	>0.1%
	Label	5.50E-07	1.26E-04	>0.1%
Total		2.36E-03	5.39E-01	4.2%

		G12RT-B66			
		Materials	KG / FU	KG / DU	%
Production materials	Cells	1.04E-03	2.44E-01	1.0%	
	Glass	4.22E-02	9.92E+00	39.8%	
	Aluminium	4.38E-03	1.03E+00	4.1%	
	EVA	3.46E-03	8.14E-01	3.3%	
	Copper	3.07E-04	7.21E-02	0.3%	
	PET	0.00E+00	0.00E+00	0.0%	
	Tin	4.47E-05	1.05E-02	0.0%	
	Junction box	1.96E-04	4.61E-02	0.2%	
	Sealant	5.56E-04	1.31E-01	0.5%	
Total		5.22E-02	1.23E+01	96.8%	
Packaging materials	Pallet	9.62E-04	2.26E-01	0.9%	
	Cardboard	7.09E-04	1.67E-01	0.7%	
	LDPE	2.67E-05	6.28E-03	>0.1%	
	HDPE	3.29E-06	7.74E-04	>0.1%	
	Label	4.77E-07	1.12E-04	>0.1%	
	Total		1.70E-03	4.00E-01	3.2%

		G12T-B66			
		Materials	KG / FU	KG / DU	%
Production materials	Cells	9.10E-04	2.12E-01	0.9%	
	Glass	4.25E-02	9.93E+00	40.4%	
	Aluminium	3.98E-03	9.29E-01	3.8%	
	EVA	3.49E-03	8.14E-01	3.3%	
	Copper	3.08E-04	7.20E-02	0.3%	
	PET	0.00E+00	0.00E+00	0.0%	
	Tin	4.50E-05	1.05E-02	0.0%	
	Junction box	1.72E-04	4.01E-02	0.2%	
	Sealant	5.07E-04	1.18E-01	0.5%	
Total		5.20E-02	1.21E+01	97.2%	
Packaging materials	Pallet	8.43E-04	1.97E-01	0.8%	
	Cardboard	6.21E-04	1.45E-01	0.6%	
	LDPE	2.34E-05	5.46E-03	>0.1%	
	HDPE	2.88E-06	6.73E-04	>0.1%	
	Label	4.18E-07	9.76E-05	>0.1%	
	Total		1.49E-03	3.48E-01	2.8%

Technical data:

The modules are tested according to the following norms:

IEC 61215 / 61730 (Design qualification and type approval)

IEC 61701 (Salt mist corrosion testing) ,

IEC 62782 (Cyclic (dynamic) mechanical load testing) , IEC 62716 (Ammonia corrosion testing)

ISO 11925-2 (Reaction to fire tests)

IEC 62938 (Non-uniform snow load testing),

IEC 62804 (Test methods for the detection of potential-induced degradation)

AS 4040.2

Market:

Europe

Reference service life, product:

30 years

LCA: Calculation rules

Declared unit:

1m² of manufactured photovoltaic module

Cut-off criteria:

No known flows has been excluded from the study.

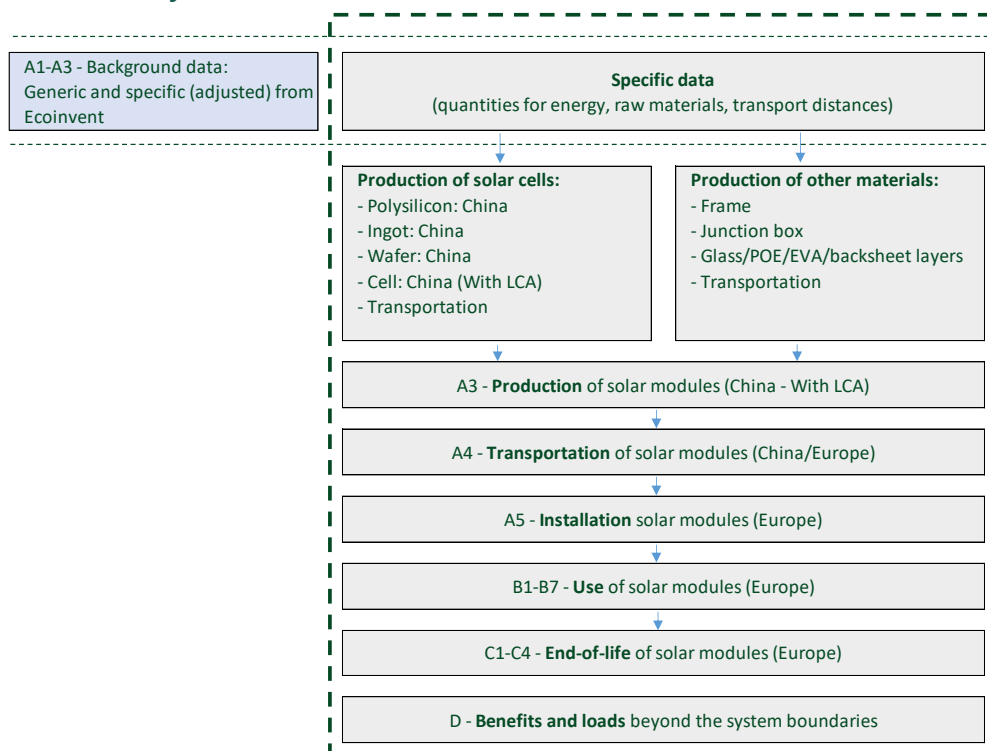
Allocation:

The allocation is made in accordance with the provisions of ISO 14025. The allocation method in accordance with ISO 14040 is process subdivision for electricity inputs. The products are distinguished as separated system processes. The electricity ratio inputs are allocated to products based on process characteristics (lamination duration/throughput).

Data quality:

Specific data comes from actual consumption of the module assembly factory (September 2023 – August 2024). This data has been collected by the manufacturer and checked by the LCA practitioner. Generic data is from Ecoinvent v3.10 and Simapro v9.6. Characterization factors from EN15804:2012 + A2: 2019. Generic data <10 years old. Ecoinvent system model used: cut-off.

System boundary:



EPD Type:

Cradle to grave and module D.

LCA: Scenarios and additional technical information

The following information describes the scenarios in the different modules of the EPD. All data are provided per functional unit.

Transport from production place to assembly/user (A4)

The transport step A4 covers the transport from the factory in China to the installation site in Europe by sea and road. The delivery port used for calculations in Europe is Rotterdam in France. There is no installation site specifically identified. Therefore, Oslo has been considered for calculations.

For readability, only M10T-B72 are presented

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance (km)	Fuel/Energy consumption	Value (tkm)
Truck	26.3%	16-32 metric ton lorry, EURO5	3 000	Diesel (4.44E-2 l/tkm)	3.52E-01
Boat	70%	Container ship	20 000	Heavy fuel (2.63E-3 l/tkm)	2.35E-01

Fuel consumption is taken from ecoinvent 3.10.

Assembly (A5)

The modules are installed by hand. The screwdriver electricity consumption is neglected. As in PCR part B, the fasteners (screws) and other additional materials are not included in the LCA. The only impact is the packaging waste given in the table below:

Item	Unit	Value
Wooden pallet	kg	1.78E-03
Cardboard	kg	5.23E-04
LDPE	kg	2.59E-05
HDPE	kg	2.87E-06
Packaging label	kg	4.63E-07

Use (B1)

Photovoltaic modules harness solar energy throughout their entire lifecycle via the photovoltaic effect. The amount of electricity they produce is directly influenced by solar irradiance. The electricity production is calculated as below:

$$E_{year\ i} = I_{sun} \times S_{1kWp} \times Eff_{panel} \times PR \times D_{panel} \times (1 + b)$$

Where :

- I_{sun} is the sun irradiation received by the module in kWh. $m^{-2}.year^{-1}$. which depends on the site location.
- PR, or Performance ratio, is the ratio between the energy produced by the panel and the final energy at the output of the photovoltaic system in order to take into account the various losses (cables, inverter, etc.). The energy produced is calculated by default with a PR of 0.75.
- Eff_{panel} , or panel efficiency, is the ratio between the energy produced and the solar radiation received.¹
- S_{1kWp} is the surface area to get 1 kWp.
- D_{panel} corresponds to the degradation of the panel in year i. This degradation is 1% the first year and then $0.4\% D_{panel} = 0.99 \times (1 - 0.40\%)^{i-1}$
- b is the bifacial gain (5% if bifacial and 0% if monofacial)

Solar irradiance for electricity production	Unit	Value
1000 kWh/m ² /year	kWh (30 years)	5 114
1100 kWh/m ² /year	kWh (30 years)	5 626
1200 kWh/m ² /year	kWh (30 years)	6 137
1400 kWh/m ² /year	kWh (30 years)	7 160
1500 kWh/m ² /year	kWh (30 years)	7 671
1700 kWh/m ² /year	kWh (30 years)	8 694

Use (B2-B7)

The modules are considered as self-cleaning materials. No maintenance, repair, replacement or refurbishment is required during the module lifetime.

End of Life (C1, C3, C4)

The modules are considered as removed by hand. Waste scenarios follow PCR part B standards for C3 and C4.

Waste process	Unit	Value
Recycling	Kg	1.07E+01
Incineration and energy recovery	Kg	1.02E+00

¹ Fixed at 1000W/m² as in STC conditions.

Transport to waste processing (C2)

It has been assumed that the modules are collected by truck and sent for recycling. 50 km is considered from the site to the recycling factory as proposed in PCR part B.

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance (km)	Fuel/Energy consumption	Value (tkm)
Truck	26.3%	16-32 metric ton lorry, EURO5	50	Diesel (4.44E-2 l/tkm)	6.16E-01

Benefits and loads beyond the system boundaries (D)

Benefits and loads have been based on glass, aluminum frame recycling and energy recovery from waste treatment.

Item	Unit	Value
Glass	Kg	9.43E+00
Aluminium	Kg	8.94E-01
Thermal energy	MJ	1.68E+01
Electric energy	MJ	3.55E+00

LCA: Results

The LCA results show the environmental impacts and resource input and output flows calculated according to ISO 14025 and EN 15804 +A2. The results are shown per functional unit, which for this declaration is 1Wp conversion factors for converting results into results per declared unit (m2) are provided in page 36, The LCA results have been calculated using the LCA software SimaPro 9.6.0.1 and represent the average value of the two factories.

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

Product stage			Assembly stage		Use stage								End of life stage				Benefits & loads beyond system boundary
Raw materials	Transport	Manufacturing	Transport	Assembly	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	X	X	X	X	X	X	X	X	X	X	X	X	

Classification of disclaimers to the declaration of core and additional environmental impact indicators

ILCD classification	Indicator	Disclaimer
ILCD type / level 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
	Acidification potential, Accumulated Exceedance (AP)	None
ILCD type / level 2	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD type / level 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2
<p>Disclaimer 1 – 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.</p> <p>Disclaimer 2 – 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</p>		

Results presented per Functional unit

Core environmental impact indicators

M10T-B72 (per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	4.56E-01	7.83E-02	1.06E-02	0.00E+00	0.00E+00	4.06E-04	3.11E-03	1.40E-03	-9.71E-02
GWP-fossil	kg CO2 eq.	4.57E-01	7.83E-02	6.42E-03	0.00E+00	0.00E+00	4.06E-04	3.11E-03	1.19E-04	-9.68E-02
GWP-biogenic	kg CO2 eq.	-2.03E-03	1.35E-05	4.22E-03	0.00E+00	0.00E+00	7.50E-08	3.64E-06	1.28E-03	-3.00E-04
GWP-LULUC	kg CO2 eq.	4.01E-04	3.23E-05	1.43E-06	0.00E+00	0.00E+00	1.38E-07	1.49E-06	3.36E-08	-1.52E-05
ODP	kg CFC11 eq.	6.02E-09	1.33E-09	1.01E-10	0.00E+00	0.00E+00	8.15E-12	1.22E-11	8.00E-13	-1.52E-11
AP	mol H ⁺ eq.	3.13E-03	9.51E-04	1.02E-05	0.00E+00	0.00E+00	1.82E-06	4.33E-05	4.01E-07	-9.65E-04
EP-freshwater	kg P eq.	4.56E-05	5.48E-07	1.30E-07	0.00E+00	0.00E+00	3.20E-09	1.33E-07	3.11E-08	-5.76E-06
EP-marine	kg N eq.	6.14E-04	2.70E-04	2.39E-06	0.00E+00	0.00E+00	7.11E-07	2.45E-06	2.15E-06	-1.08E-04
EP-terrestrial	mol N eq.	6.13E-03	2.98E-03	2.64E-05	0.00E+00	0.00E+00	7.81E-06	3.24E-05	1.25E-06	-1.22E-03
POCP	kg NMVOC eq.	1.76E-03	8.94E-04	9.91E-06	0.00E+00	0.00E+00	2.80E-06	9.57E-06	7.88E-07	-3.62E-04
ADP-M&M	kg Sb eq.	1.75E-05	1.97E-07	1.71E-08	0.00E+00	0.00E+00	1.29E-09	5.33E-07	8.51E-11	7.26E-08
ADP-fossil	MJ	3.18E+00	8.17E-02	6.95E-03	0.00E+00	0.00E+00	4.82E-04	7.01E-03	1.39E-04	-8.01E-01
WDP	m ³	1.46E-01	4.24E-03	5.28E-04	0.00E+00	0.00E+00	2.57E-05	7.88E-04	-3.82E-04	-5.17E-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

M10T-B78 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	4.53E-01	8.08E-02	1.11E-02	0.00E+00	0.00E+00	2.76E-04	3.63E-03	1.40E-03	-9.57E-02
GWP-fossil	kg CO2 eq.	4.55E-01	8.08E-02	6.67E-03	0.00E+00	0.00E+00	2.76E-04	3.63E-03	1.19E-04	-9.54E-02
GWP-biogenic	kg CO2 eq.	-2.33E-03	1.39E-05	4.39E-03	0.00E+00	0.00E+00	5.01E-08	3.67E-06	1.28E-03	-3.00E-04
GWP-LULUC	kg CO2 eq.	3.96E-04	3.34E-05	1.49E-06	0.00E+00	0.00E+00	9.48E-08	1.51E-06	3.35E-08	-1.52E-05
ODP	kg CFC11 eq.	6.01E-09	1.38E-09	1.05E-10	0.00E+00	0.00E+00	5.55E-12	1.30E-11	7.98E-13	-1.36E-11
AP	mol H ⁺ eq.	3.13E-03	9.81E-04	1.06E-05	0.00E+00	0.00E+00	8.92E-07	4.43E-05	4.00E-07	-9.50E-04
EP-freshwater	kg P eq.	4.55E-05	5.65E-07	1.35E-07	0.00E+00	0.00E+00	2.15E-09	1.36E-07	3.10E-08	-5.68E-06
EP-marine	kg N eq.	6.11E-04	2.78E-04	2.49E-06	0.00E+00	0.00E+00	2.99E-07	2.61E-06	2.14E-06	-1.06E-04
EP-terrestrial	mol N eq.	6.10E-03	3.08E-03	2.75E-05	0.00E+00	0.00E+00	3.30E-06	3.42E-05	1.24E-06	-1.20E-03
POCP	kg NMVOC eq.	1.75E-03	9.23E-04	1.03E-05	0.00E+00	0.00E+00	1.45E-06	1.01E-05	7.86E-07	-3.57E-04
ADP-M&M	kg Sb eq.	1.77E-05	2.03E-07	1.78E-08	0.00E+00	0.00E+00	7.66E-10	5.43E-07	8.48E-11	6.57E-08
ADP-fossil	MJ	3.20E+00	8.43E-02	7.22E-03	0.00E+00	0.00E+00	3.29E-04	7.17E-03	1.39E-04	-7.88E-01
WDP	m ³	1.46E-01	4.37E-03	5.49E-04	0.00E+00	0.00E+00	1.93E-05	8.11E-04	-3.81E-04	-5.17E-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

M10RT-54 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	4.66E-01	8.30E-02	1.06E-02	0.00E+00	0.00E+00	2.37E-04	3.69E-03	1.16E-03	-1.10E-01
GWP-fossil	kg CO2 eq.	4.68E-01	8.29E-02	6.37E-03	0.00E+00	0.00E+00	2.37E-04	3.68E-03	9.82E-05	-1.09E-01
GWP-biogenic	kg CO2 eq.	-2.01E-03	1.40E-05	4.19E-03	0.00E+00	0.00E+00	4.31E-08	3.55E-06	1.06E-03	-2.41E-04
GWP-LULUC	kg CO2 eq.	4.44E-04	3.29E-05	1.42E-06	0.00E+00	0.00E+00	8.15E-08	1.57E-06	2.77E-08	-1.61E-05
ODP	kg CFC11 eq.	3.24E-08	1.41E-09	1.01E-10	0.00E+00	0.00E+00	4.77E-12	1.34E-11	6.60E-13	-1.28E-10
AP	mol H ⁺ eq.	3.18E-03	8.30E-04	1.01E-05	0.00E+00	0.00E+00	7.66E-07	4.85E-05	3.31E-07	-1.08E-03
EP-freshwater	kg P eq.	4.59E-05	5.86E-07	1.29E-07	0.00E+00	0.00E+00	1.85E-09	1.49E-07	2.57E-08	-6.44E-06
EP-marine	kg N eq.	6.17E-04	2.22E-04	2.37E-06	0.00E+00	0.00E+00	2.57E-07	2.77E-06	1.77E-06	-1.22E-04
EP-terrestrial	mol N eq.	6.16E-03	2.46E-03	2.63E-05	0.00E+00	0.00E+00	2.83E-06	3.63E-05	1.03E-06	-1.38E-03
POCP	kg NMVOC eq.	1.79E-03	7.70E-04	9.83E-06	0.00E+00	0.00E+00	1.25E-06	1.08E-05	6.50E-07	-4.12E-04
ADP-M&M	kg Sb eq.	1.80E-05	2.23E-07	1.70E-08	0.00E+00	0.00E+00	6.58E-10	5.97E-07	7.02E-11	1.55E-07
ADP-fossil	MJ	3.29E+00	8.70E-02	6.90E-03	0.00E+00	0.00E+00	2.82E-04	7.69E-03	1.15E-04	-8.97E-01
WDP	m ³	1.48E-01	4.33E-03	5.24E-04	0.00E+00	0.00E+00	1.66E-05	8.66E-04	-3.15E-04	-5.18E-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.

M10RT-60 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	4.66E-01	8.29E-02	1.07E-02	0.00E+00	0.00E+00	2.36E-04	5.09E-03	1.16E-03	-1.12E-01
GWP-fossil	kg CO2 eq.	4.68E-01	8.29E-02	6.62E-03	0.00E+00	0.00E+00	2.36E-04	5.09E-03	9.85E-05	-1.12E-01
GWP-biogenic	kg CO2 eq.	-1.85E-03	1.40E-05	4.03E-03	0.00E+00	0.00E+00	4.29E-08	3.50E-06	1.06E-03	-2.40E-04
GWP-LULUC	kg CO2 eq.	4.49E-04	3.29E-05	1.48E-06	0.00E+00	0.00E+00	8.11E-08	1.53E-06	2.78E-08	-1.63E-05
ODP	kg CFC11 eq.	3.26E-08	1.41E-09	1.05E-10	0.00E+00	0.00E+00	4.75E-12	1.48E-11	6.62E-13	-1.34E-10
AP	mol H ⁺ eq.	3.18E-03	8.29E-04	1.06E-05	0.00E+00	0.00E+00	7.63E-07	4.67E-05	3.32E-07	-1.10E-03
EP-freshwater	kg P eq.	4.60E-05	5.86E-07	1.34E-07	0.00E+00	0.00E+00	1.84E-09	1.42E-07	2.58E-08	-6.58E-06
EP-marine	kg N eq.	6.16E-04	2.22E-04	2.47E-06	0.00E+00	0.00E+00	2.56E-07	3.04E-06	1.78E-06	-1.25E-04
EP-terrestrial	mol N eq.	6.15E-03	2.46E-03	2.73E-05	0.00E+00	0.00E+00	2.82E-06	3.87E-05	1.03E-06	-1.41E-03
POCP	kg NMVOC eq.	1.79E-03	7.69E-04	1.02E-05	0.00E+00	0.00E+00	1.24E-06	1.13E-05	6.52E-07	-4.21E-04
ADP-M&M	kg Sb eq.	1.77E-05	2.22E-07	1.76E-08	0.00E+00	0.00E+00	6.55E-10	5.64E-07	7.04E-11	1.64E-07
ADP-fossil	MJ	3.28E+00	8.69E-02	7.17E-03	0.00E+00	0.00E+00	2.81E-04	7.47E-03	1.15E-04	-9.18E-01
WDP	m ³	1.48E-01	4.32E-03	5.45E-04	0.00E+00	0.00E+00	1.65E-05	8.59E-04	-3.16E-04	-5.23E-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

M10RT-B54 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	4.66E-01	9.33E-02	1.02E-02	0.00E+00	0.00E+00	2.37E-03	3.38E-03	1.41E-03	-1.04E-01
GWP-fossil	kg CO2 eq.	4.67E-01	9.32E-02	6.13E-03	0.00E+00	0.00E+00	2.36E-03	3.37E-03	1.20E-04	-1.04E-01
GWP-biogenic	kg CO2 eq.	-1.80E-03	1.57E-05	4.03E-03	0.00E+00	0.00E+00	4.29E-07	3.81E-06	1.29E-03	-3.00E-04
GWP-LULUC	kg CO2 eq.	4.34E-04	3.70E-05	1.37E-06	0.00E+00	0.00E+00	8.11E-07	1.60E-06	3.37E-08	-1.60E-05
ODP	kg CFC11 eq.	5.51E-09	1.58E-09	9.70E-11	0.00E+00	0.00E+00	4.75E-11	1.32E-11	8.03E-13	-3.90E-11
AP	mol H ⁺ eq.	3.22E-03	9.33E-04	9.77E-06	0.00E+00	0.00E+00	7.63E-06	4.76E-05	4.03E-07	-1.04E-03
EP-freshwater	kg P eq.	4.56E-05	6.59E-07	1.24E-07	0.00E+00	0.00E+00	1.84E-08	1.46E-07	3.13E-08	-6.19E-06
EP-marine	kg N eq.	6.23E-04	2.50E-04	2.29E-06	0.00E+00	0.00E+00	2.56E-06	2.67E-06	2.15E-06	-1.16E-04
EP-terrestrial	mol N eq.	6.25E-03	2.77E-03	2.53E-05	0.00E+00	0.00E+00	2.82E-05	3.54E-05	1.25E-06	-1.31E-03
POCP	kg NMVOC eq.	1.80E-03	8.65E-04	9.47E-06	0.00E+00	0.00E+00	1.24E-05	1.05E-05	7.91E-07	-3.91E-04
ADP-M&M	kg Sb eq.	1.79E-05	2.50E-07	1.63E-08	0.00E+00	0.00E+00	6.55E-09	5.86E-07	8.54E-11	9.81E-08
ADP-fossil	MJ	3.21E+00	9.77E-02	6.64E-03	0.00E+00	0.00E+00	2.81E-03	7.64E-03	1.40E-04	-8.61E-01
WDP	m ³	1.48E-01	4.86E-03	5.05E-04	0.00E+00	0.00E+00	1.65E-04	8.59E-04	-3.83E-04	-5.37E-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

M10RT-B60 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	4.69E-01	9.84E-02	1.12E-02	0.00E+00	0.00E+00	2.85E-04	3.40E-03	1.43E-03	-9.98E-02
GWP-fossil	kg CO2 eq.	4.70E-01	9.83E-02	6.75E-03	0.00E+00	0.00E+00	2.85E-04	3.39E-03	1.21E-04	-9.94E-02
GWP-biogenic	kg CO2 eq.	-2.15E-03	1.66E-05	4.42E-03	0.00E+00	0.00E+00	5.16E-08	3.87E-06	1.31E-03	-3.05E-04
GWP-LULUC	kg CO2 eq.	4.25E-04	3.90E-05	1.51E-06	0.00E+00	0.00E+00	9.77E-08	1.63E-06	3.41E-08	-1.56E-05
ODP	kg CFC11 eq.	5.55E-09	1.67E-09	1.07E-10	0.00E+00	0.00E+00	5.72E-12	1.34E-11	8.14E-13	-1.93E-11
AP	mol H ⁺ eq.	3.26E-03	9.84E-04	1.08E-05	0.00E+00	0.00E+00	9.19E-07	4.84E-05	4.08E-07	-9.92E-04
EP-freshwater	kg P eq.	4.65E-05	6.95E-07	1.36E-07	0.00E+00	0.00E+00	2.22E-09	1.49E-07	3.17E-08	-5.92E-06
EP-marine	kg N eq.	6.31E-04	2.63E-04	2.52E-06	0.00E+00	0.00E+00	3.08E-07	2.71E-06	2.18E-06	-1.11E-04
EP-terrestrial	mol N eq.	6.32E-03	2.92E-03	2.78E-05	0.00E+00	0.00E+00	3.40E-06	3.59E-05	1.27E-06	-1.25E-03
POCP	kg NMVOC eq.	1.82E-03	9.12E-04	1.04E-05	0.00E+00	0.00E+00	1.50E-06	1.06E-05	8.02E-07	-3.73E-04
ADP-M&M	kg Sb eq.	1.83E-05	2.64E-07	1.80E-08	0.00E+00	0.00E+00	7.89E-10	5.97E-07	8.66E-11	7.70E-08
ADP-fossil	MJ	3.22E+00	1.03E-01	7.31E-03	0.00E+00	0.00E+00	3.39E-04	7.78E-03	1.42E-04	-8.23E-01
WDP	m ³	1.50E-01	5.13E-03	5.56E-04	0.00E+00	0.00E+00	1.99E-05	8.73E-04	-3.88E-04	-5.30E-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

G12RT-B66 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	4.55E-01	8.45E-02	8.85E-03	0.00E+00	0.00E+00	2.73E-04	1.04E-03	1.39E-03	-1.00E-01
GWP-fossil	kg CO2 eq.	4.57E-01	8.44E-02	4.69E-03	0.00E+00	0.00E+00	2.73E-04	1.04E-03	1.18E-04	-9.98E-02
GWP-biogenic	kg CO2 eq.	-1.95E-03	1.43E-05	4.16E-03	0.00E+00	0.00E+00	4.95E-08	4.01E-06	1.27E-03	-2.97E-04
GWP-LULUC	kg CO2 eq.	4.19E-04	3.35E-05	1.05E-06	0.00E+00	0.00E+00	9.36E-08	1.77E-06	3.33E-08	-1.56E-05
ODP	kg CFC11 eq.	5.32E-09	1.43E-09	7.41E-11	0.00E+00	0.00E+00	5.48E-12	1.16E-11	7.94E-13	-3.03E-11
AP	mol H ⁺ eq.	3.14E-03	8.45E-04	7.47E-06	0.00E+00	0.00E+00	8.81E-07	5.44E-05	3.98E-07	-9.94E-04
EP-freshwater	kg P eq.	4.53E-05	5.97E-07	9.46E-08	0.00E+00	0.00E+00	2.13E-09	1.69E-07	3.09E-08	-5.94E-06
EP-marine	kg N eq.	6.12E-04	2.26E-04	1.75E-06	0.00E+00	0.00E+00	2.96E-07	2.39E-06	2.13E-06	-1.12E-04
EP-terrestrial	mol N eq.	6.11E-03	2.51E-03	1.93E-05	0.00E+00	0.00E+00	3.25E-06	3.36E-05	1.24E-06	-1.26E-03
POCP	kg NMVOC eq.	1.76E-03	7.84E-04	7.24E-06	0.00E+00	0.00E+00	1.43E-06	1.02E-05	7.82E-07	-3.74E-04
ADP-M&M	kg Sb eq.	1.76E-05	2.27E-07	1.25E-08	0.00E+00	0.00E+00	7.56E-10	6.92E-07	8.44E-11	8.42E-08
ADP-fossil	MJ	3.12E+00	8.85E-02	5.07E-03	0.00E+00	0.00E+00	3.25E-04	8.57E-03	1.38E-04	-8.25E-01
WDP	m ³	1.45E-01	4.40E-03	3.86E-04	0.00E+00	0.00E+00	1.91E-05	9.31E-04	-3.79E-04	-5.26E-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

G12T-B66 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	4.49E-01	7.98E-02	8.30E-03	0.00E+00	0.00E+00	2.79E-04	2.88E-03	1.39E-03	-9.10E-02
GWP-fossil	kg CO2 eq.	4.51E-01	7.98E-02	4.11E-03	0.00E+00	0.00E+00	2.79E-04	2.88E-03	1.18E-04	-9.07E-02
GWP-biogenic	kg CO2 eq.	-1.98E-03	1.35E-05	4.19E-03	0.00E+00	0.00E+00	5.06E-08	3.34E-06	1.27E-03	-2.99E-04
GWP-LULUC	kg CO2 eq.	4.00E-04	3.16E-05	9.17E-07	0.00E+00	0.00E+00	9.57E-08	1.30E-06	3.32E-08	-1.45E-05
ODP	kg CFC11 eq.	5.24E-09	1.35E-09	6.50E-11	0.00E+00	0.00E+00	5.61E-12	1.08E-11	7.92E-13	3.41E-12
AP	mol H ⁺ eq.	3.11E-03	7.99E-04	6.55E-06	0.00E+00	0.00E+00	9.01E-07	3.65E-05	3.97E-07	-9.05E-04
EP-freshwater	kg P eq.	4.55E-05	5.64E-07	8.29E-08	0.00E+00	0.00E+00	2.17E-09	1.12E-07	3.08E-08	-5.41E-06
EP-marine	kg N eq.	6.07E-04	2.14E-04	1.53E-06	0.00E+00	0.00E+00	3.02E-07	2.13E-06	2.12E-06	-1.01E-04
EP-terrestrial	mol N eq.	6.06E-03	2.37E-03	1.69E-05	0.00E+00	0.00E+00	3.33E-06	2.82E-05	1.24E-06	-1.14E-03
POCP	kg NMVOC eq.	1.75E-03	7.41E-04	6.34E-06	0.00E+00	0.00E+00	1.47E-06	8.25E-06	7.80E-07	-3.39E-04
ADP-M&M	kg Sb eq.	1.75E-05	2.14E-07	1.09E-08	0.00E+00	0.00E+00	7.73E-10	4.47E-07	8.42E-11	5.29E-08
ADP-fossil	MJ	3.08E+00	8.36E-02	4.45E-03	0.00E+00	0.00E+00	3.32E-04	6.00E-03	1.38E-04	-7.51E-01
WDP	m ³	1.45E-01	4.16E-03	3.38E-04	0.00E+00	0.00E+00	1.95E-05	6.78E-04	-3.78E-04	-5.00E-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

Additional environmental impact indicators

M10T-B72 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PM	disease incidence	3.65E-08	5.93E-09	5.28E-04	0.00E+00	0.00E+00	2.57E-05	7.88E-04	-3.82E-04	-5.17E-03
IRP	kBq U-235 eq	6.45E-03	3.83E-04	1.35E-10	0.00E+00	0.00E+00	3.92E-11	1.14E-10	5.31E-12	-5.34E-09
ETP-fw	CTUe	3.54E+00	1.84E-01	3.22E-05	0.00E+00	0.00E+00	2.74E-06	6.13E-05	7.13E-07	-1.76E-03
HTP-c	CTUh	2.52E-09	4.31E-10	8.18E-02	0.00E+00	0.00E+00	1.14E-03	3.27E-02	2.15E-02	-1.22E-01
HTP-nc	CTUh	5.69E-09	2.96E-10	1.17E-11	0.00E+00	0.00E+00	2.71E-12	8.09E-12	1.76E-13	-1.27E-10
SQP	Dimensionless	1.84E+00	6.01E-01	2.81E-11	0.00E+00	0.00E+00	1.78E-12	1.41E-10	1.74E-10	-5.64E-10

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

¹ 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.

² 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

M10T-B78 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1	C1	C2	C3	C4	D
PM	disease incidence	3.60E-08	6.12E-09	1.41E-10	0.00E+00	0.00E+00	2.74E-11	1.18E-10	5.30E-12	-5.28E-09
IRP	kBq U-235 eq	6.14E-03	3.95E-04	3.35E-05	0.00E+00	0.00E+00	1.76E-06	6.23E-05	7.11E-07	-1.73E-03
ETP-fw	CTUe	3.35E+00	1.90E-01	8.50E-02	0.00E+00	0.00E+00	6.93E-04	3.48E-02	2.14E-02	-1.20E-01
HTP-c	CTUh	2.61E-09	4.45E-10	1.22E-11	0.00E+00	0.00E+00	1.69E-12	8.45E-12	1.76E-13	-1.06E-10
HTP-nc	CTUh	1.00E-08	3.05E-10	2.92E-11	0.00E+00	0.00E+00	9.27E-13	1.44E-10	1.74E-10	-5.54E-10
SQP	Dimensionless	1.81E+00	6.21E-01	9.73E-03	0.00E+00	0.00E+00	4.02E-03	1.82E-02	1.40E-03	-2.01E-01

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

M10RT-54 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1	C1	C2	C3	C4	D
PM	disease incidence	3.71E-08	5.45E-09	1.34E-10	0.00E+00	0.00E+00	2.35E-11	1.26E-10	4.38E-12	-6.12E-09
IRP	kBq U-235 eq	6.67E-03	4.01E-04	3.20E-05	0.00E+00	0.00E+00	1.52E-06	6.52E-05	5.88E-07	-1.97E-03
ETP-fw	CTUe	3.58E+00	2.03E-01	8.12E-02	0.00E+00	0.00E+00	5.95E-04	3.71E-02	1.77E-02	-1.25E-01
HTP-c	CTUh	2.65E-09	4.75E-10	1.16E-11	0.00E+00	0.00E+00	1.45E-12	8.70E-12	1.45E-13	-1.43E-10
HTP-nc	CTUh	5.90E-09	2.65E-10	2.79E-11	0.00E+00	0.00E+00	7.97E-13	1.58E-10	1.43E-10	-6.16E-10
SQP	Dimensionless	1.96E+00	5.32E-01	9.29E-03	0.00E+00	0.00E+00	3.46E-03	1.95E-02	1.16E-03	-2.30E-01

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

M10RT-60 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1	C1	C2	C3	C4	D
PM	disease incidence	3.71E-08	5.45E-09	1.40E-10	0.00E+00	0.00E+00	2.34E-11	1.28E-10	4.40E-12	-6.25E-09
IRP	kBq U-235 eq	6.58E-03	4.01E-04	3.33E-05	0.00E+00	0.00E+00	1.51E-06	6.31E-05	5.90E-07	-2.02E-03
ETP-fw	CTUe	3.57E+00	2.03E-01	8.44E-02	0.00E+00	0.00E+00	5.93E-04	4.05E-02	1.78E-02	-1.27E-01
HTP-c	CTUh	2.66E-09	4.74E-10	1.21E-11	0.00E+00	0.00E+00	1.44E-12	9.21E-12	1.46E-13	-1.46E-10
HTP-nc	CTUh	5.89E-09	2.65E-10	2.90E-11	0.00E+00	0.00E+00	7.93E-13	1.51E-10	1.44E-10	-6.30E-10
SQP	Dimensionless	1.94E+00	5.32E-01	9.66E-03	0.00E+00	0.00E+00	3.44E-03	1.91E-02	1.16E-03	-2.32E-01

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

M10RT-B54 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1	C1	C2	C3	C4	D
PM	disease incidence	3.75E-08	6.12E-09	1.29E-10	0.00E+00	0.00E+00	2.34E-10	1.24E-10	5.33E-12	-5.74E-09
IRP	kBq U-235 eq	6.48E-03	4.51E-04	3.08E-05	0.00E+00	0.00E+00	1.51E-05	6.61E-05	7.16E-07	-1.90E-03
ETP-fw	CTUe	3.61E+00	2.28E-01	7.82E-02	0.00E+00	0.00E+00	5.93E-03	3.57E-02	2.16E-02	-1.28E-01
HTP-c	CTUh	2.63E-09	5.34E-10	1.12E-11	0.00E+00	0.00E+00	1.45E-11	8.71E-12	1.77E-13	-1.37E-10
HTP-nc	CTUh	5.84E-09	2.98E-10	2.69E-11	0.00E+00	0.00E+00	7.94E-12	1.55E-10	1.75E-10	-6.04E-10
SQP	Dimensionless	1.95E+00	5.98E-01	8.95E-03	0.00E+00	0.00E+00	3.44E-02	1.94E-02	1.41E-03	-2.11E-01

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

M10RT-B60 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PM	disease incidence	3.76E-08	6.46E-09	1.42E-10	0.00E+00	0.00E+00	2.82E-11	1.26E-10	5.40E-12	-5.49E-09
IRP	kBq U-235 eq	6.26E-03	4.76E-04	3.39E-05	0.00E+00	0.00E+00	1.82E-06	6.73E-05	7.25E-07	-1.81E-03
ETP-fw	CTUe	3.68E+00	2.41E-01	8.61E-02	0.00E+00	0.00E+00	7.14E-04	3.62E-02	2.19E-02	-1.25E-01
HTP-c	CTUh	2.66E-09	5.63E-10	1.23E-11	0.00E+00	0.00E+00	1.74E-12	8.83E-12	1.79E-13	-1.31E-10
HTP-nc	CTUh	5.97E-09	3.14E-10	2.96E-11	0.00E+00	0.00E+00	9.55E-13	1.58E-10	1.77E-10	-5.79E-10
SQP	Dimensionless	1.95E+00	6.31E-01	9.85E-03	0.00E+00	0.00E+00	4.15E-03	1.97E-02	1.43E-03	-2.05E-01

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

G12RT-B66 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1	C1	C2	C3	C4	D
PM	disease incidence	3.65E-08	5.55E-09	9.88E-11	0.00E+00	0.00E+00	2.71E-11	1.29E-10	5.27E-12	-5.52E-09
IRP	kBq U-235 eq	6.23E-03	4.09E-04	2.35E-05	0.00E+00	0.00E+00	1.74E-06	7.40E-05	7.07E-07	-1.81E-03
ETP-fw	CTUe	3.56E+00	2.07E-01	5.97E-02	0.00E+00	0.00E+00	6.84E-04	3.20E-02	2.13E-02	-1.24E-01
HTP-c	CTUh	2.60E-09	4.83E-10	8.57E-12	0.00E+00	0.00E+00	1.67E-12	8.29E-12	1.75E-13	-1.31E-10
HTP-nc	CTUh	5.75E-09	2.70E-10	2.05E-11	0.00E+00	0.00E+00	9.16E-13	1.81E-10	1.73E-10	-5.78E-10
SQP	Dimensionless	1.89E+00	5.42E-01	6.84E-03	0.00E+00	0.00E+00	3.97E-03	2.14E-02	1.39E-03	-2.07E-01

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

G12T-B66 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
PM	disease incidence	3.58E-08	5.24E-09	8.66E-11	0.00E+00	0.00E+00	2.77E-11	9.80E-11	5.26E-12	-5.00E-09
IRP	kBq U-235 eq	6.15E-03	3.86E-04	2.06E-05	0.00E+00	0.00E+00	1.78E-06	5.33E-05	7.06E-07	-1.65E-03
ETP-fw	CTUe	3.57E+00	1.95E-01	5.24E-02	0.00E+00	0.00E+00	7.00E-04	2.84E-02	2.13E-02	-1.17E-01
HTP-c	CTUh	2.59E-09	4.57E-10	7.51E-12	0.00E+00	0.00E+00	1.71E-12	7.17E-12	1.75E-13	-1.19E-10
HTP-nc	CTUh	5.76E-09	2.55E-10	1.80E-11	0.00E+00	0.00E+00	9.36E-13	1.19E-10	1.72E-10	-5.30E-10
SQP	Dimensionless	1.88E+00	5.12E-01	5.99E-03	0.00E+00	0.00E+00	4.06E-03	1.53E-02	1.39E-03	-1.89E-01

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

Resource use

M10T-B72 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
RPEE	MJ	8.19E-01	1.46E-02	1.22E-03	0.00E+00	0.00E+00	1.00E-04	1.45E-02	2.34E-05	-4.77E-02
RPEM	MJ	4.31E-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	8.19E-01	1.46E-02	1.22E-03	0.00E+00	0.00E+00	1.00E-04	1.45E-02	2.34E-05	-4.77E-02
NRPE	MJ	3.07E+00	8.18E-02	6.95E-03	0.00E+00	0.00E+00	4.82E-04	7.01E-03	1.40E-04	-8.01E-01
NRPM	MJ	1.12E-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
TRPE	MJ	3.18E+00	8.18E-02	6.95E-03	0.00E+00	0.00E+00	4.82E-04	7.01E-03	1.40E-04	-8.01E-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	-2.23E-02	-6.13E-04	-7.00E-05	0.00E+00	0.00E+00	-3.77E-06	4.09E-05	-1.07E-05	1.72E-03

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.

M10T-B78 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
RPEE	MJ	8.10E-01	1.51E-02	1.27E-03	0.00E+00	0.00E+00	6.36E-05	1.44E-02	2.34E-05	-5.01E-02
RPEM	MJ	4.49E-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	8.55E-01	1.51E-02	1.27E-03	0.00E+00	0.00E+00	6.36E-05	1.44E-02	2.34E-05	-5.01E-02
NRPE	MJ	2.97E+00	8.44E-02	7.22E-03	0.00E+00	0.00E+00	3.29E-04	7.17E-03	1.39E-04	-8.04E-01
NRPM	MJ	1.55E-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
TRPE	MJ	3.13E+00	8.44E-02	7.22E-03	0.00E+00	0.00E+00	3.29E-04	7.17E-03	1.39E-04	-8.04E-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	-2.29E-02	-6.33E-04	-7.27E-05	0.00E+00	0.00E+00	-2.58E-06	3.69E-05	-1.07E-05	1.64E-03

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.

M10RT-54 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
RPEE	MJ	8.51E-01	1.55E-02	1.22E-03	0.00E+00	0.00E+00	5.46E-05	1.28E-02	1.93E-05	-6.34E-02
RPEM	MJ	3.09E-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	8.51E-01	1.55E-02	1.22E-03	0.00E+00	0.00E+00	5.46E-05	1.28E-02	1.93E-05	-6.34E-02
NRPE	MJ	3.14E+00	8.70E-02	6.90E-03	0.00E+00	0.00E+00	2.83E-04	7.69E-03	1.15E-04	-8.97E-01
NRPM	MJ	1.55E-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
TRPE	MJ	3.29E+00	8.70E-02	6.90E-03	0.00E+00	0.00E+00	2.83E-04	7.69E-03	1.15E-04	-8.97E-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	-2.26E-02	-6.47E-04	-6.94E-05	0.00E+00	0.00E+00	-2.22E-06	2.14E-05	-8.81E-06	1.36E-03

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.

M10RT-60 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
RPEE	MJ	8.50E-01	1.54E-02	1.26E-03	0.00E+00	0.00E+00	5.44E-05	1.27E-02	1.94E-05	-6.27E-02
RPEM	MJ	4.10E-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	8.50E-01	1.54E-02	1.26E-03	0.00E+00	0.00E+00	5.44E-05	1.27E-02	1.94E-05	-6.27E-02
NRPE	MJ	3.13E+00	8.69E-02	7.17E-03	0.00E+00	0.00E+00	2.81E-04	7.47E-03	1.15E-04	-9.18E-01
NRPM	MJ	1.49E-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
TRPE	MJ	3.28E+00	8.69E-02	7.17E-03	0.00E+00	0.00E+00	2.81E-04	7.47E-03	1.15E-04	-9.18E-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	-2.24E-02	-6.47E-04	-7.22E-05	0.00E+00	0.00E+00	-2.21E-06	1.65E-05	-8.84E-06	1.38E-03

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.

M10RT-B54 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
RPEE	MJ	8.44E-01	1.74E-02	1.17E-03	0.00E+00	0.00E+00	5.44E-04	1.47E-02	2.35E-05	-5.01E-02
RPEM	MJ	4.10E-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	8.44E-01	1.74E-02	1.17E-03	0.00E+00	0.00E+00	5.44E-04	1.47E-02	2.35E-05	-5.01E-02
NRPE	MJ	3.09E+00	9.78E-02	6.64E-03	0.00E+00	0.00E+00	2.81E-03	7.64E-03	1.40E-04	-8.61E-01
NRPM	MJ	1.13E-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
TRPE	MJ	3.21E+00	9.78E-02	6.64E-03	0.00E+00	0.00E+00	2.81E-03	7.64E-03	1.40E-04	-8.61E-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	-2.28E-02	-7.28E-04	-6.69E-05	0.00E+00	0.00E+00	-2.21E-05	3.69E-05	-1.07E-05	1.74E-03

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.

M10RT-B60 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
RPEE	MJ	8.54E-01	1.83E-02	1.29E-03	0.00E+00	0.00E+00	6.55E-05	1.49E-02	2.38E-05	-4.92E-02
RPEM	MJ	4.36E-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	8.54E-01	1.83E-02	1.29E-03	0.00E+00	0.00E+00	6.55E-05	1.49E-02	2.38E-05	-4.92E-02
NRPE	MJ	3.11E+00	1.03E-01	7.32E-03	0.00E+00	0.00E+00	3.39E-04	7.78E-03	1.42E-04	-8.23E-01
NRPM	MJ	1.09E-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
TRPE	MJ	3.22E+00	1.03E-01	7.32E-03	0.00E+00	0.00E+00	3.39E-04	7.78E-03	1.42E-04	-8.23E-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	-2.26E-02	-7.67E-04	-7.37E-05	0.00E+00	0.00E+00	-2.66E-06	3.71E-05	-1.09E-05	1.75E-03

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.

G12RT-B66 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
RPEE	MJ	8.25E-01	1.57E-02	8.95E-04	0.00E+00	0.00E+00	6.28E-05	1.49E-02	2.32E-05	-5.12E-02
RPEM	MJ	3.08E-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
TPE	MJ	8.25E-01	1.57E-02	8.95E-04	0.00E+00	0.00E+00	6.28E-05	1.49E-02	2.32E-05	-5.12E-02
NRPE	MJ	3.01E+00	8.86E-02	5.08E-03	0.00E+00	0.00E+00	3.25E-04	8.57E-03	1.38E-04	-8.25E-01
NRPM	MJ	1.11E-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
TRPE	MJ	3.12E+00	8.86E-02	5.08E-03	0.00E+00	0.00E+00	3.25E-04	8.57E-03	1.38E-04	-8.25E-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	-2.22E-02	-6.59E-04	-5.11E-05	0.00E+00	0.00E+00	-2.55E-06	4.03E-05	-1.06E-05	1.70E-03

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.

G12T-B66 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
RPEE	MJ	8.23E-01	1.49E-02	7.84E-04	0.00E+00	0.00E+00	6.42E-05	1.39E-02	2.32E-05	-4.58E-02
RPEM	MJ	2.69E-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	8.23E-01	1.49E-02	7.84E-04	0.00E+00	0.00E+00	6.42E-05	1.39E-02	2.32E-05	-4.58E-02
NRPE	MJ	2.97E+00	8.37E-02	4.45E-03	0.00E+00	0.00E+00	3.32E-04	6.00E-03	1.38E-04	-7.51E-01
NRPM	MJ	1.11E-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
TRPE	MJ	3.08E+00	8.37E-02	4.45E-03	0.00E+00	0.00E+00	3.32E-04	6.00E-03	1.38E-04	-7.51E-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	-2.21E-02	-6.23E-04	-4.48E-05	0.00E+00	0.00E+00	-2.60E-06	4.49E-05	-1.06E-05	1.70E-03

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

M10T-B72 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HW	kg	2.24E-03	2.95E-05	4.42E-04	0.00E+00	0.00E+00	1.83E-07	1.10E-03	4.22E-07	5.37E-04
NHW	kg	5.92E-01	5.89E-02	1.87E-03	0.00E+00	0.00E+00	4.19E-04	1.39E-02	2.37E-03	-8.70E-02
RW	kg	4.53E-06	2.57E-07	2.15E-08	0.00E+00	0.00E+00	1.91E-09	4.21E-08	4.57E-10	-1.08E-06

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

M10T-B78 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HW	kg	1.08E-03	3.04E-05	4.59E-04	0.00E+00	0.00E+00	1.33E-07	1.35E-03	4.21E-07	2.94E-04
NHW	kg	5.93E-01	6.08E-02	1.94E-03	0.00E+00	0.00E+00	3.84E-04	1.41E-02	2.37E-03	-8.51E-02
RW	kg	4.11E-06	2.65E-07	2.23E-08	0.00E+00	0.00E+00	1.20E-09	4.29E-08	4.56E-10	-1.06E-06

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

M10RT-54 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HW	kg	2.20E-03	3.07E-05	4.39E-04	0.00E+00	0.00E+00	1.14E-07	1.34E-03	3.48E-07	5.60E-04
NHW	kg	6.22E-01	5.29E-02	1.86E-03	0.00E+00	0.00E+00	3.30E-04	1.55E-02	1.96E-03	-9.54E-02
RW	kg	4.49E-06	2.70E-07	2.13E-08	0.00E+00	0.00E+00	1.03E-09	4.56E-08	3.77E-10	-1.22E-06

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

M10RT-60 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HW	kg	2.21E-03	3.06E-05	4.56E-04	0.00E+00	0.00E+00	1.14E-07	2.04E-03	3.49E-07	5.73E-04
NHW	kg	6.18E-01	5.29E-02	1.93E-03	0.00E+00	0.00E+00	3.29E-04	1.48E-02	1.96E-03	-9.76E-02
RW	kg	4.41E-06	2.70E-07	2.22E-08	0.00E+00	0.00E+00	1.03E-09	4.41E-08	3.78E-10	-1.26E-06

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

M10RT-B54 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HW	kg	2.20E-03	3.45E-05	4.22E-04	0.00E+00	0.00E+00	1.14E-06	1.19E-03	4.23E-07	5.70E-04
NHW	kg	6.14E-01	5.95E-02	1.79E-03	0.00E+00	0.00E+00	3.29E-03	1.52E-02	2.38E-03	-9.33E-02
RW	kg	4.37E-06	3.03E-07	2.05E-08	0.00E+00	0.00E+00	1.03E-08	4.57E-08	4.59E-10	-1.17E-06

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

M10RT-B60 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HW	kg	2.28E-03	3.63E-05	4.65E-04	0.00E+00	0.00E+00	1.37E-07	1.19E-03	4.29E-07	5.50E-04
NHW	kg	6.26E-01	6.27E-02	1.97E-03	0.00E+00	0.00E+00	3.96E-04	1.55E-02	2.41E-03	-8.94E-02
RW	kg	4.20E-06	3.20E-07	2.26E-08	0.00E+00	0.00E+00	1.24E-09	4.65E-08	4.65E-10	-1.11E-06

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

G12RT-B66 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HW	kg	2.19E-03	3.12E-05	3.23E-04	0.00E+00	0.00E+00	1.32E-07	1.38E-06	4.18E-07	5.47E-04
NHW	kg	5.98E-01	5.39E-02	1.37E-03	0.00E+00	0.00E+00	3.80E-04	1.77E-02	2.35E-03	-8.93E-02
RW	kg	4.19E-06	2.75E-07	1.57E-08	0.00E+00	0.00E+00	1.19E-09	5.16E-08	4.53E-10	-1.11E-06

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

G12T-B66 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
HW	kg	2.21E-03	2.95E-05	2.83E-04	0.00E+00	0.00E+00	1.35E-07	1.05E-03	4.18E-07	5.09E-04
NHW	kg	5.94E-01	5.09E-02	1.20E-03	0.00E+00	0.00E+00	3.88E-04	1.17E-02	2.35E-03	-8.18E-02
RW	kg	4.13E-06	2.60E-07	1.37E-08	0.00E+00	0.00E+00	1.21E-09	3.63E-08	4.52E-10	-1.00E-06

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

End of life – output flow

M10T-B72 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
CR	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
MR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.61E-02	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-02	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.22E-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.

M10T-B78 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
CR	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
MR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.60E-02	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-02	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.02E-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.

M10RT-54 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
CR	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
MR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.85E-02	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.55E-02	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-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.

M10RT-60 (Per Wp)

Indicator	Unit	EPD	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
CR	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	0.00E+00
MR	kg	3.86E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.86E-02	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	2.49E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-02	0.00E+00	0.00E+00
ETE	MJ	1.18E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E-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.

M10RT-B54 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
CR	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
MR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-02	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-02	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.67E-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.

M10RT-B60 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
CR	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
MR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.69E-02	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-02	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.53E-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.

G12RT-B66 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
CR	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
MR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.59E-02	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-02	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.19E-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.

G12T-B66 (Per Wp)

Indicator	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
CR	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
MR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.58E-02	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-02	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.93E-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

Information describing the biogenic carbon content at the factory gate

M10T-B72

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in the accompanying packaging	kg C	1.15E-03

M10RT-60

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in the accompanying packaging	kg C	1.10E-03

M10RT-B54

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in the accompanying packaging	kg C	1.11E-03

M10T-B78

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in the accompanying packaging	kg C	1.20E-03

M10RT-B60

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in the accompanying packaging	kg C	1.22E-03

G12RT-B66

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in the accompanying packaging	kg C	1.13E-03

M10RT-54

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in the accompanying packaging	kg C	1.14E-03

G12T-B66

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in the accompanying packaging	kg C	1.14E-03

Results presented per Declared unit

For readability the results per declared unit can be recalculated based on the following conversion ratios:

Modules	Conversion ratio FU to DU
M10T-B72HXX	232.27
M10T-B78HXX	232.53
M10RT-54HXX	232.72
M10RT-B54HXX	232.72
M10RT-60HXX	232.89
M10RT-B60HXX	228.37
G12RT-B66HXX	235.08
G12T-B66HXX	233.39

Results per declared unit: ***FU*** × **Conversion ratio**

Additional requirements

Electricity modelling in manufacturing phase

Regional market for and medium voltage (production of transmission lines, in addition to direct emissions and losses in grid) electricity dataset has been used for upstream industrial stages (Polysil, ingot, Wafer, Cells) (foreground/core) per functional unit.

For module manufacturing stage (A3) a mix of regional market for (medium voltage) and on-site pv plant self-consumption datasets are used.

Model dataset	A3 (kWh/m ²)	Share %	Unit	Value
Electricity, medium voltage {CN-EGCG} market group for Cut-off, U	2.80E+00	92.3%	kgCO ₂ -eq / kWh	0.857
Electricity, low voltage {CN-JS} electricity production, photovoltaic, 3kWp slanted-roof installation, single-Si, panel, mounted Cut-off, U	2.32E-01	7.65%	kgCO ₂ -eq / kWh	0.090

An on-site audit has been conducted and the self-produced pv electricity has been verified that is 100% consumed on-site.

Additional environmental impact indicators required in NPCR Part A for construction products (per functional unit)

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. GWP-BC is also presented for information.

M10T-B72

Indicator	Unit (per FU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater	kg PO ₄ eq.	4.56E-05	5.48E-07	1.30E-07	0.00E+00	0.00E+00	3.20E-09	1.33E-07	3.11E-08	-5.76E-06
GWP-IOBC	kg CO ₂ eq.	4.60E-01	7.83E-02	6.42E-03	0.00E+00	0.00E+00	4.06E-04	3.11E-03	1.40E-03	-9.71E-02
GWP-BC	kg CO ₂ eq.	-4.22E-03	0.00E+00	4.22E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO ₂ eq.	4.56E-01	7.83E-02	1.06E-02	0.00E+00	0.00E+00	4.06E-04	3.11E-03	1.40E-03	-9.71E-02

EP-freshwater* Eutrophication potential, fraction of nutrients reaching freshwater end compartment. Declared as PO₄ eq. **GWP-IOBC** Global warming potential calculated according to the principle of instantaneous oxidation. **GWP-BC** Global warming potential from net uptake and emissions of biogenic carbon from the materials in each module. **GWP** Global warming potential.

M10T-B78

Indicator	Unit (per FU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater	kg PO ₄ eq.	4.55E-05	5.65E-07	1.35E-07	0.00E+00	0.00E+00	2.15E-09	1.36E-07	3.10E-08	-5.68E-06
GWP-IOBC	kg CO ₂ eq.	4.57E-01	1.39E-05	1.07E-07	0.00E+00	0.00E+00	5.01E-08	3.67E-06	1.28E-03	-3.00E-04
GWP-BC	kg CO ₂ eq.	-4.39E-03	0.00E+00	4.39E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO ₂ eq.	4.53E-01	1.39E-05	4.39E-03	0.00E+00	0.00E+00	5.01E-08	3.67E-06	1.28E-03	-3.00E-04

M10RT-54

Indicator	Unit (per FU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater	kg PO ₄ eq.	6.17E-04	2.22E-04	2.37E-06	0.00E+00	0.00E+00	2.57E-07	2.77E-06	1.77E-06	-1.22E-04
GWP-IOBC	kg CO ₂ eq.	4.72E-01	8.29E-02	2.18E-03	0.00E+00	0.00E+00	2.37E-04	3.68E-03	9.82E-05	-1.09E-01
GWP-BC	kg CO ₂ eq.	-4.18E-03	0.00E+00	4.18E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO ₂ eq.	4.68E-01	8.29E-02	6.37E-03	0.00E+00	0.00E+00	2.37E-04	3.68E-03	9.82E-05	-1.09E-01

M10RT-60

Indicator	Unit (per FU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater	kg PO4 eq.	6.16E-04	2.22E-04	2.47E-06	0.00E+00	0.00E+00	2.56E-07	3.04E-06	1.78E-06	-1.25E-04
GWP-IOBC	kg CO2 eq.	4.72E-01	8.29E-02	2.59E-03	0.00E+00	0.00E+00	2.36E-04	5.09E-03	9.85E-05	-1.12E-01
GWP-BC	kg CO2 eq.	-4.03E-03	0.00E+00	4.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO2 eq.	4.68E-01	8.29E-02	6.62E-03	0.00E+00	0.00E+00	2.36E-04	5.09E-03	9.85E-05	-1.12E-01

M10RT-B54

Indicator	Unit (per FU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater	kg PO4 eq.	6.25E-03	2.77E-03	2.53E-05	0.00E+00	0.00E+00	2.82E-05	3.54E-05	1.25E-06	-1.31E-03
GWP-IOBC	kg CO2 eq.	4.70E-01	1.57E-05	8.73E-07	0.00E+00	0.00E+00	4.29E-07	3.81E-06	1.29E-03	-3.00E-04
GWP-BC	kg CO2 eq.	-4.03E-03	0.00E+00	4.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO2 eq.	4.66E-01	1.57E-05	4.03E-03	0.00E+00	0.00E+00	4.29E-07	3.81E-06	1.29E-03	-3.00E-04

M10RT-B60

Indicator	Unit (per FU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater	kg PO4 eq.	6.32E-03	2.92E-03	2.78E-05	0.00E+00	0.00E+00	3.40E-06	3.59E-05	1.27E-06	-1.25E-03
GWP-IOBC	kg CO2 eq.	4.73E-01	1.66E-05	-7.62E-06	0.00E+00	0.00E+00	5.16E-08	3.87E-06	1.31E-03	-3.05E-04
GWP-BC	kg CO2 eq.	-4.43E-03	0.00E+00	4.43E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO2 eq.	4.69E-01	1.66E-05	4.42E-03	0.00E+00	0.00E+00	5.16E-08	3.87E-06	1.31E-03	-3.05E-04

G12RT-B66

Indicator	Unit (per FU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater	kg PO4 eq.	6.11E-03	2.51E-03	1.93E-05	0.00E+00	0.00E+00	3.25E-06	3.36E-05	1.24E-06	-1.26E-03
GWP-IOBC	kg CO2 eq.	4.59E-01	1.43E-05	2.52E-06	0.00E+00	0.00E+00	4.95E-08	4.01E-06	1.27E-03	-2.97E-04
GWP-BC	kg CO2 eq.	-4.15E-03	0.00E+00	4.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO2 eq.	4.55E-01	1.43E-05	4.16E-03	0.00E+00	0.00E+00	4.95E-08	4.01E-06	1.27E-03	-2.97E-04

G12T-B66

Indicator	Unit (per FU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater	kg PO4 eq.	6.06E-03	2.37E-03	1.69E-05	0.00E+00	0.00E+00	3.33E-06	2.82E-05	1.24E-06	-1.14E-03
GWP-IOBC	kg CO2 eq.	4.54E-01	1.35E-05	2.35E-06	0.00E+00	0.00E+00	5.06E-08	3.34E-06	1.27E-03	-2.99E-04
GWP-BC	kg CO2 eq.	-4.18E-03	0.00E+00	4.18E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO2 eq.	4.49E-01	1.35E-05	4.19E-03	0.00E+00	0.00E+00	5.06E-08	3.34E-06	1.27E-03	-2.99E-04

Additional environmental impact indicators required in NPCR Part A for construction products (per declared unit)

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. GWP-BC is also presented for information.

M10T-B72

Indicator	Unit (per DU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater	kg PO4 eq.	1.06E-02	1.27E-04	3.01E-05	0.00E+00	0.00E+00	7.44E-07	3.09E-05	7.23E-06	-1.34E-03
GWP-IOBC	kg CO2 eq.	1.07E+02	1.82E+01	1.49E+00	0.00E+00	0.00E+00	9.43E-02	7.23E-01	3.26E-01	-2.25E+01
GWP-BC	kg CO2 eq.	-9.80E-01	0.00E+00	9.80E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO2 eq.	1.06E+02	1.82E+01	2.47E+00	0.00E+00	0.00E+00	9.43E-02	7.23E-01	3.26E-01	-2.25E+01

EP-freshwater* Eutrophication potential, fraction of nutrients reaching freshwater end compartment. Declared as PO4 eq. **GWP-IOBC** Global warming potential calculated according to the principle of instantaneous oxidation. **GWP-BC** Global warming potential from net uptake and emissions of biogenic carbon from the materials in each module. **GWP** Global warming potential.

M10T-B78

Indicator	Unit (per DU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater*	kg PO4 eq.	1.06E-02	1.31E-04	3.13E-05	0.00E+00	0.00E+00	5.01E-07	3.16E-05	7.22E-06	-1.32E-03
GWP-IOBC	kg CO2 eq.	1.06E+02	3.23E-03	2.49E-05	0.00E+00	0.00E+00	1.17E-05	8.53E-04	2.98E-01	-6.98E-02
GWP-BC	kg CO2 eq.	-1.02E+00	0.00E+00	1.02E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO2 eq.	1.05E+02	3.23E-03	1.02E+00	0.00E+00	0.00E+00	1.17E-05	8.53E-04	2.98E-01	-6.98E-02

M10RT-54

Indicator	Unit (per DU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater*	kg PO4 eq.	1.44E-01	5.17E-02	5.52E-04	0.00E+00	0.00E+00	5.99E-05	6.45E-04	4.12E-04	-2.85E-02
GWP-IOBC	kg CO2 eq.	1.10E+02	1.93E+01	5.08E-01	0.00E+00	0.00E+00	5.52E-02	8.58E-01	2.28E-02	-2.54E+01
GWP-BC	kg CO2 eq.	-9.74E-01	0.00E+00	9.74E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO2 eq.	1.09E+02	1.93E+01	1.48E+00	0.00E+00	0.00E+00	5.52E-02	8.58E-01	2.28E-02	-2.54E+01

M10RT-60

Indicator	Unit (per DU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater*	kg PO4 eq.	1.44E-01	5.17E-02	5.75E-04	0.00E+00	0.00E+00	5.96E-05	7.07E-04	4.14E-04	-2.92E-02
GWP-IOBC	kg CO2 eq.	1.10E+02	1.93E+01	6.04E-01	0.00E+00	0.00E+00	5.50E-02	1.19E+00	2.29E-02	-2.60E+01
GWP-BC	kg CO2 eq.	-9.38E-01	0.00E+00	9.38E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO2 eq.	1.09E+02	1.93E+01	1.54E+00	0.00E+00	0.00E+00	5.50E-02	1.19E+00	2.29E-02	-2.60E+01

M10RT-B54

Indicator	Unit (per DU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater*	kg PO4 eq.	1.45E+00	6.44E-01	5.88E-03	0.00E+00	0.00E+00	6.56E-03	8.23E-03	2.91E-04	-3.05E-01
GWP-IOBC	kg CO2 eq.	1.09E+02	3.66E-03	2.03E-04	0.00E+00	0.00E+00	9.98E-05	8.88E-04	3.00E-01	-6.97E-02
GWP-BC	kg CO2 eq.	-9.38E-01	0.00E+00	9.38E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO2 eq.	1.08E+02	3.66E-03	9.38E-01	0.00E+00	0.00E+00	9.98E-05	8.88E-04	3.00E-01	-6.97E-02

M10RT-B60

Indicator	Unit (per DU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater*	kg PO4 eq.	1.44E+00	6.66E-01	6.36E-03	0.00E+00	0.00E+00	7.75E-04	8.20E-03	2.90E-04	-2.86E-01
GWP-IOBC	kg CO2 eq.	1.08E+02	3.79E-03	-1.74E-03	0.00E+00	0.00E+00	1.18E-05	8.84E-04	2.98E-01	-6.97E-02
GWP-BC	kg CO2 eq.	-1.01E+00	0.00E+00	1.01E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO2 eq.	1.07E+02	3.79E-03	1.01E+00	0.00E+00	0.00E+00	1.18E-05	8.84E-04	2.98E-01	-6.97E-02

G12RT-B66

Indicator	Unit (per DU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater*	kg PO4 eq.	1.44E+00	5.89E-01	4.54E-03	0.00E+00	0.00E+00	7.65E-04	7.90E-03	2.91E-04	-2.95E-01
GWP-IOBC	kg CO2 eq.	1.08E+02	3.35E-03	5.92E-04	0.00E+00	0.00E+00	1.16E-05	9.42E-04	2.99E-01	-6.98E-02
GWP-BC	kg CO2 eq.	-9.77E-01	0.00E+00	9.77E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO2 eq.	1.07E+02	3.35E-03	9.77E-01	0.00E+00	0.00E+00	1.16E-05	9.42E-04	2.99E-01	-6.98E-02

G12T-B66

Indicator	Unit (per DU)	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
EP-freshwater*	kg PO4 eq.	1.41E+00	5.53E-01	3.95E-03	0.00E+00	0.00E+00	7.77E-04	6.58E-03	2.88E-04	-2.66E-01
GWP-IOBC	kg CO2 eq.	1.06E+02	3.14E-03	5.49E-04	0.00E+00	0.00E+00	1.18E-05	7.79E-04	2.96E-01	-6.98E-02
GWP-BC	kg CO2 eq.	-9.77E-01	0.00E+00	9.77E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP	kg CO2 eq.	1.05E+02	3.14E-03	9.77E-01	0.00E+00	0.00E+00	1.18E-05	7.79E-04	2.96E-01	-6.98E-02

Hazardous substances

The declaration is based upon reference to threshold values provided to EPD verifiers. Documentation available on request to EPD owner.

➔ The product contains substances given by the REACH Candidate list that are less than 0,1 % by weight.

Indoor environment

No tests have been carried out on the product concerning indoor climate

Carbon footprint

While a carbon footprint analysis has not been conducted for the product separately, the results section does include an evaluation of Global Warming Potential (GWP) with such an analysis. The GWP total results presented in this EPD document represents the carbon footprint of the product studied

The carbon footprint (per Wp) of the products are:

- M10T-B72HXX = **5.50E-01** kgCO2 eq (A1-C4)
- M10T-B78HXX = **5.50E-01** kgCO2 eq (A1-C4)
- M10RT-54 = **5.65E-01** kgCO2 eq (A1-C4)
- M10RT-60 = **5.66E-01** kgCO2 eq (A1-C4)
- M10RT-B54 = **5.77E-01** kgCO2 eq (A1-C4)
- M10RT-B60 = **5.83E-01** kgCO2 eq (A1-C4)
- G12RT-B66 = **5.51E-01** kgCO2 eq (A1-C4)
- G12T-B66 = **5.42E-01** kgCO2 eq (A1-C4)

EPD results conversion factors of various power output ranges

Pv modules are produced within a range of power output, to recalculate the specific impact result for a power output, conversion factors are provided below :

M10T-B72

Rated power output range (Wp)	580	585	590	595	600
Conversion factor	1.034	1.026	1.017	1.008	1.000

M10T-B78

Rated power output range (Wp)	630	635	640	645	650
Conversion factor	1.032	1.024	1.016	1.008	1.000

M10RT-54

Rated power output range (Wp)	440	445	450	455	460	465
Conversion factor	1.057	1.045	1.033	1.022	1.011	1.000

M10RT-60

Rated power output range (Wp)	490	495	500	505	510	515
Conversion factor	1.051	1.040	1.030	1.020	1.010	1.000

M10RT-B54

Rated power output range (Wp)	440	445	450	455	460	465
Conversion factor	1.057	1.045	1.033	1.022	1.011	1.000

M10RT-B60

Rated power output range (Wp)	485	490	495	500	505
Conversion factor	1.041	1.031	1.020	1.010	1.000

G12RT-B66






Rated power output range (Wp)	610	615	620	625	630	635
Conversion factor	1.041	1.033	1.024	1.016	1.008	1.000

G12T-B66

Rated power output range (Wp)	700	705	710	715	720	725
Conversion factor	1.036	1.028	1.021	1.014	1.007	1.000

Bibliography

ISO 14025:2010	Environmental labels and declarations - Type III environmental declarations - Principles and procedures
ISO 14044:2006	Environmental management - Life cycle assessment - Requirements and guidelines
EN 15804:2012+A2:2019	Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
ISO 21930:2007	Sustainability in building construction - Environmental declaration of building products
LCA report	EPD report Sihong v2 (2024) and Liangyungang (2024).
NPCR	Part A “Construction products and services” version 2.0 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
Simapro	Version 9.6.0.1
Ecoinvent	Version 3.10

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