Environmental Product Declaration

In accordance with ISO 14025 for:

District Heat from Beleverket

from

Hässleholm Miljö AB

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-05636
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Programme information

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com

Product category rules (PCR): *PCR 2007:08, version 4.2. Electricity, steam and hot water generation and distribution, The International EPD System.*
PCR review was conducted by: *The Technical Committee of the International EPD® System. Chair: Claudia A. Peña. Contact via info@environdec.com*
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: *Niels Jungbluth, ESU-Services Ltd., jungbluth@esu-services.ch* Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable.

Company information

Owner of the EPD:
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Description of the organisation:
Hässleholm Miljö AB (HMAB) is a commercial company owned by the municipality of Hässleholm. HMAB treat and recycle waste from households, industry and other businesses, produce and deliver district heating in Hässleholm and Tyringe and are responsible for supplying tap water and managing waste and storm water. HMAB also handle the municipality's operation of waterworks, treatment plants, pumping stations and general water and sewerage pipes.

Hässleholm Miljö produce and deliver district heat and constantly work for high delivery security, good service and competitive prices. The district heating operations are based on long-term economic assessments and are planned based on the positive environmental effects it can contribute with. As far as possible, production is based on local raw materials and energy that would otherwise be wasted, such as wood chips and combustible waste.

Name and location of production site:
Hässleholm Miljö has 2 sites for producing district heat. They are 2 separate networks. The name of the production site covered by this EPD is Beleverket located in Hässleholm.

Product information

Product name: District heat, 1 kWh

Product description: District heat produced by Hässleholm Miljö. The fuels consist mainly of sorted combustible waste and biomass.

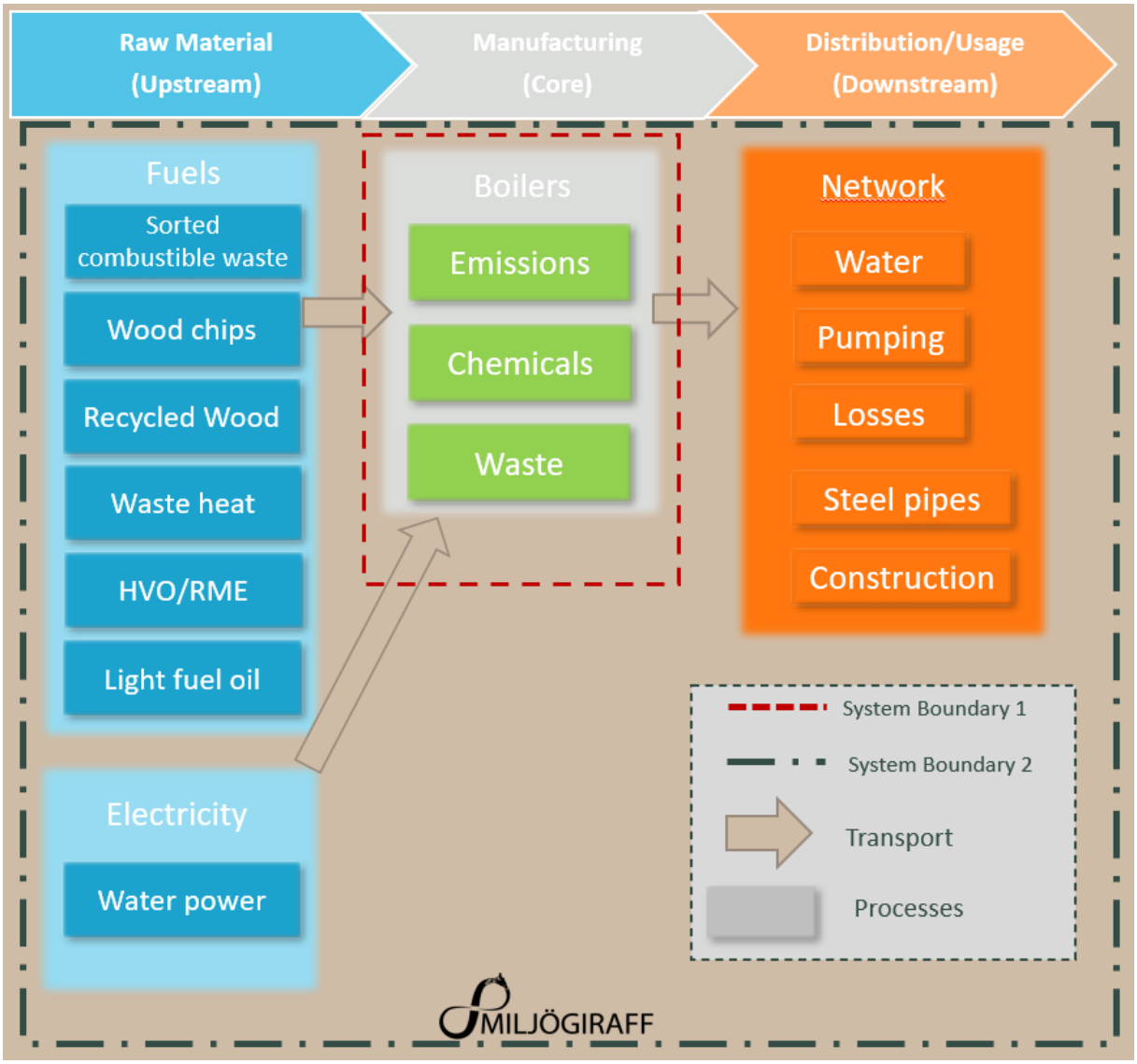
UN CPC code: UN CPC 171, 173

LCA information

Functional Unit	The functional unit is 1kWh net of hot water generated and thereafter distributed to the customer.
Reference service life	40 years for infrastructure in accordance with the PCR
Goal and Scope	The result will be used to understand where the environmental burden for the district heat occurs during the life cycle (cradle-to-grave) and aims to lay a road map for development to decrease this burden. The result will be communicated by the International EPD system. The intended audience is both internal at Hässleholm Miljö and an external audience such as end-clients.
Manufacturing Site	Hässleholm, Sweden.
Geographical Area	Sweden
Time representativeness	The specific data from the production site is gathered for the year 2020.
Compliant with	This EPD follows the "Book-keeping" LCA approach which is defined as attributional LCA in the ISO 14040 standard. In accordance with ISO 14025, ISO 14040 – ISO 140 44. This EPD follows the Product Category Rules Electricity, steam and hot water generation and distribution valid until 2024-03-16
Cut-Off Rules	The following procedure is followed for the exclusion of inputs and output: - Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impacts shall be included
Background data	The data quality is considered good. All site-specific data for raw materials, auxiliary materials as well as energy and emissions in the manufacturing process is from 2020 and have been represented with ecoinvent datasets. Regarding data for the piping systems, only length of pipe network has been collected. The infrastructure is represented by a proxy. All other relevant environmental aspects have been represented by generic ecoinvent data. ecoinvent is the world's biggest LCI (Life cycle inventory) data library and the latest and most updated version was used. ecoinvent contains data for the specific geographical regions relevant for this study. The background data from ecoinvent 3.8 are from 2016-2020.
Electricity data	Electricity consumption in the A3 module comes from Hässleholm Miljö's own production from the combined heat and power plant and the purchased electricity comes from Swedish hydropower, with a certificate according to Guarantee of Origin.
Allocations	The Polluter Pays Principle / Allocation by Classification is applied in the study. There are a several types of allocation procedures considered in this study: • The allocation of environmental burden between electricity and heat produced in combined heat and power plant is allocated according to the Alternative Generation method. • Allocation to residual material (wood) • Allocation of the use of waste as fuel according to PPP • Allocation of waste heat to previous life cycle according to PCR • Ash and by-products from flue gas cleaning according to the PCR
Based on LCA Report	Miljögiraff LCA Report 827, LCA of district heat by Hässleholm Miljö.
LCA Practitioner	Annie Johansson, Miljögiraff AB
Software	SimaPro 9.3

System diagram

The EPD follows the cradle-to-grave system boundaries as defined in the PCR. The system is divided into upstream (raw materials and electricity), core (manufacturing) and the remaining downstream (distribution/usage). The usage of hot water fulfils various functions in different contexts and is therefore excluded from the downstream module as well as the end-of-life of the product according to the PCR See the system diagram below for information about included modules.



Environmental performance

Potential environmental impact

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Global warming potential (GWP)	Fossil	kg CO_2 eq.	0,0110	0,0055	0,0186	0,0351
	Biogenic	kg CO_2 eq.	4,47E-05	2,79E-06	2,85E-05	7,6E-05
	Land use and land transformation	kg CO_2 eq.	2,60E-04	2,01E-06	2,31E-05	2,85E-04
	TOTAL	kg CO_2 eq.	0,0113	0,0055	0,0186	0,0355
Depletion potential of the stratospheric ozone layer (ODP)		kg CFC 11 eq.	4,51E-05	1,70E-05	7,20E-05	1,34E-04
Acidification potential (AP)		kg SO_2 eq.	1,85E-05	2,01E-05	3,48E-05	7,34E-05
Eutrophication potential (EP)		kg PO_4^{3-} eq.	8,02E-05	8,22E-05	8,84E-05	2,51E-04
Photochemical oxidant formation potential (POFP)		kg NMVOC eq.	1,38E-05	6,17E-06	3,00E-05	5,00E-05
Abiotic depletion potential – Elements		kg Sb eq.	3,17E-08	2,24E-08	1,12E-07	1,66E-07
Abiotic depletion potential – Fossil resources		MJ, net calorific value	0,159	0,055	0,207	0,420
Water scarcity potential		m^3 eq.	1,88E-03	2,34E-03	0,00936	0,0136

Use of resources

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	5,14	0,0028	0,0146	5,15
	Used as raw materials	MJ, net calorific value	0,0000	0,0000	0,0000	0,0000
	TOTAL	MJ, net calorific value	5,14	0,0028	0,0146	5,15
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	0,196	0,061	0,240	0,496
	Used as raw materials	MJ, net calorific value	0	0	0	0
	TOTAL	MJ, net calorific value	0,196	0,061	0,240	0,496
Secondary material		kg	0	0	0	0
Renewable secondary fuels		MJ, net calorific value	2,82E+00	0	0	2,82E+00
Non-renewable secondary fuels		MJ, net calorific value	4,30E-01	0	0	4,30E-01

Net use of fresh water	m^3	6,83E-05	4,18E-05	3,22E-04	4,32E-04

Waste production and output flows

Waste production

PARAMETER	UNIT	Core	TOTAL
Hazardous waste disposed	kg	N/A	N/A
Depleted uranium (UF6) in case of nuclear power	g	N/A	N/A
Non-hazardous waste disposed	kg	0	0
Ash	kg	0	0
Gypsum, in case of combustion technologies	kg	0	0
Radioactive waste disposed	kg	N/A	N/A
High-level radioactive waste in case of nuclear power	kg	N/A	N/A
Low and medium-level radioactive waste in case of nuclear power	kg	N/A	N/A

PARAMETER	UNIT	Upstream	Downstream	TOTAL
Hazardous waste disposed	kg	N/A	N/A	N/A
Depleted uranium (UF6) in case of nuclear power	g	N/A	N/A	N/A
Non-hazardous waste disposed	kg	0	0	0
Ash	kg	0	0	0
Gypsum, in case of combustion technologies	kg	0	0	0
Radioactive waste disposed	kg	N/A	N/A	N/A
High-level radioactive waste in case of nuclear power	kg	N/A	N/A	N/A
Low and medium-level radioactive waste in case of nuclear power	kg	N/A	N/A	N/A

Output flows

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Components for reuse	kg	0	0	0	0
Material for recycling	kg	0	0	0	0
Materials for energy recovery	kg	0	0	0	0

The result tables shall only contain values or the letters "INA" (Indicator Not Assessed). It is not possible to specify INA for mandatory indicators. INA shall only be used for voluntary parameters that are not quantified because no data is available.

References

- Ecoinvent 3.8, ‘Ecoinvent’ https://ecoinvent.org/the-ecoinvent-database/
- EN ISO 14025:2014-02 Environmental labels and declarations - Type III environmental declarations - Principles and procedures, Edited in 2010
- EN ISO 14040:2006 Environmental management - Life cycle assessment - Principles and framework, 2006
- EN ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines, 2006
- General Programme Instructions of the International EPD® System. Version 4.0
- ILCD International guide for life-cycle data system. General guide for life cycle assessment – Detailed guidance, 2010
- Johansson, Annie, Miljögiraff AB, LCA of district heat by Hässleholm Miljö Report 827, 2022-06-22
- Johnsson Sivertsson, Elin. Enhetschef Teknik & Utveckling. Hässleholm Miljö AB
- Product Category Rules Electricity, steam and hot water generation and distribution. PCR 2007:08, version 4.2, valid until 2024—03-16. The International EPD System.
- PRé Consultants, “SimaPro 9.3” (PRé Consultants, 2022), http://www.pre-sustainability.com/simapro

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