2025-03-20

LEED - EAc5 - Measurement and Verification

Requirement	Information provided by the DES company
Information about the measured amount of energy delivered to the building from the DES has to be given to the LEED seeking project	1) Heat delivered [MWh/year] **Fylls i av kund** **Lev. Fjärrvärme: MWh** **Lev Fjärrkyla: MWh**
Amount (in energy terms) and type of fuel used for heat production in heat only boilers (HOB).	Fuel i_n (all fuels) [MWh/year]

Bränsletyp	Tillfört MWh
Avfallsbränsle	1 211 697
Bioolja	456 314
El	967 435
Fossilolja	170 160
Förädlat Trädbränsle	125 627
Oförädlat Trädbränsle	1 073 794

Amount (in energy terms) and type of fuel used in each combined heat and power (CHP) plant in the DES.	Fuel i_n (all fuels) [MWh/year]

Bränsletyp	Tillfört MWh
Avfallsbränsle	1 527 250
El	263 411
Fossilolja	133 572
Förädlat Trädbränsle	168 518
Oförädlat Trädbränsle	1 227 766
Rökgaskondensering	900 682

Specific primary energy factors, PEF, for fuels that the DES-company uses compared to those suggested in Swedish DES-guide, table 5 in Appendix A. If the PEF differs an explanation why is needed.

$PEF_{HOB(i)}$ and $PEF_{CHP(i)}$ (specific fuels) [kWh_p/kWh_{fuel}]

PEF Stockholm Exergi (VMK)		Swedish DES calculation method
Eo1	1,11	1,11
Eo5	1,11	1,11
Kol	1,15	1,15
Secondary biofuels	0,03	1,05
Wooden pellets etc	0,11	1,05

	Biooil	0,04	0,03
	Household waste	0,04	0,03
	Return fuel*	0,05	0,03
	Electricity unspec. Nordic mix	2,46	1,90
	Electricity origin labeled	0	-
	Waste heat	0	0,00
	Energy from sea and sewer	0	-

*Return fuels consist of sorted and quality-controlled paper, wood and plastic that cannot be recycled and come from offices, shops and industries

The biggest difference is that tiles and wood pellets according to VMK (as used by Stockholm Exergi) are considered secondary fuels while Swedish DES Calc. Meth blends biofuels into a primary fuel mail.

Additional PEF can be found in the appendix to the "*Överenskommelse i värmemarknadskommittén 2024"*

Total amount of produced heat in the specific combined heat and power plant.	1) Heat produced [MWh/year]
	4 447 651 MWh
Total amount of produced electricity, without deduction of auxiliary electricity, in the specific combined heat and power plant.	1) Electricity produced [MWh/year]
	702 997 MWh
The total delivered district heating to all customers in the district heating network.	1) Heat delivered [MWh/year]
	Total heating delivered in heating network: 7 847 289 MWh
For district cooling additional information is needed. That is;	
The amount of electricity used to produce the cooling (including both the auxiliary electricity for circulation of the cold water in the DES and the electric energy needed for the heat pumps).	1) Auxiliary electricity [MWh/year]
	Pumpel 21 188 MWh
	2) Electricity used in combined heat pumps [MWh/year]
	Combined heat pumps and refrigerating machines: 90 789 MWh
Produced heat and cooling in heat pumps	1) Total produced Heat [MWh/year]
	2 167 364 MWh

	2) Total produced cooling [MWh/year]
	335 840 MWh (Incl. Combined heat pumps, Free cooling, Cooling machines Waste cooling)
The amount of heat energy used to produce cooling in absorption chillers. In best case monthly amounts are used and summarized for one year.	1) Heat month, Jan - Dec [MWh/month]
	Fortum does not have any absorption chillers in its network.
	2) Monthly Production Scheme [Fuel type, MWh, production type]
	Fortum does not have any absorption chillers in its network.