



## System overview

### Meteorological data

Properties	Value, unit	Properties	Value, unit
Outdoor temperature	8.24 °C	Global irradiance	1343.1 kWh/m <sup>2</sup>
Diffuse irradiance	526.5 kWh/m <sup>2</sup>	Long wavelength irradiance	2522.7 kWh/m <sup>2</sup>
Wind speed	1.7 m/s	Air humidity	66.2 %
Outdoor temperature 24-h-mean	8.24 °C	Standard outdoor temperature	-22 °C
Normal direct irradiance	1658.3 kWh/m <sup>2</sup>		

### Definition of the consumers

Consumer	Cat. n.	Name	Description	Temperature setting	Energy consumption
Presence	1	always present	Presence days: 365	-	-
Hot water			200.7 l/d	50 °C	3233.8 kWh/Year

### Definition of the solar system

Element	Cat. n.	Name	Properties, Value, unit
Collector	8000	2x Vitosol 100-F	Total area: 5.04 m <sup>2</sup> , Data Source: ISFH, Total absorber area: 4.64 m <sup>2</sup> , Orientation: 0°, Tilt angle: 45°
Boiler	1	Gas boiler, small	Power: 5 kW, Efficiency value: 90%
Pipe 14	32	Copper pipe 22x1	-
External heat exchanger	1	Plate heat exchanger, small	Transfer capacity: 5000 W/K, Number of heat exchanger plates: 20
Storage tank 1	563	150l potable water master tank	Volume: 150 l, Thickness of insulation: 80 mm
Storage tank 2	564	200l potable water tank	Volume: 200 l, Thickness of insulation: 80 mm
Auxiliary heating controller			Reference for temperature sensors 1: Variable value, Minimum operation time: 0 min, Minimum downtime: 0 min
Mixing valve controller			Definition temperature setting: Variable value, Temperature shift: 2 K
Pump controller solar loop			Maximum tank temperature: 90 °C, Cut-in temperature difference: 6 K, Cut-off temperature difference: 2 K, Definition flow rate setting: Specific flow rate

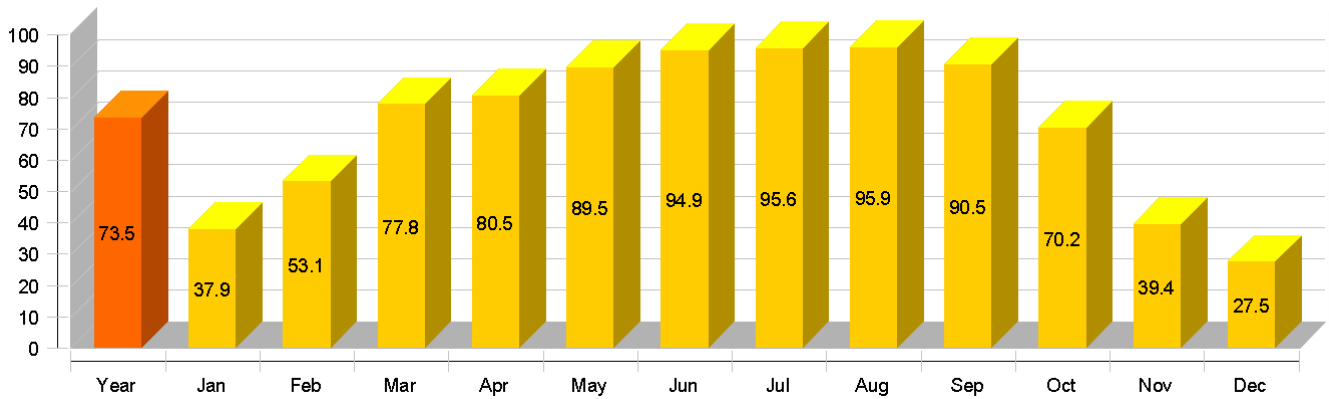
## Results overview

### Fraction of solar energy to system (net)

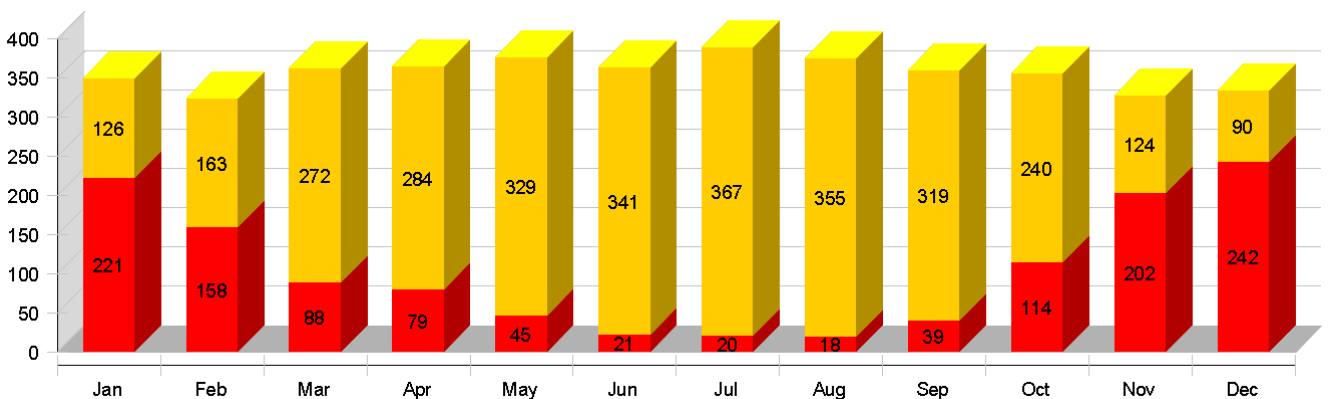
Symbol	Unit	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SFn	%	73.5	37.9	53.1	77.8	80.5	89.5	94.9	95.6	95.9	90.5	70.2	39.4	27.5
Qsol	kWh	3457	135	179	308	326	383	401	436	425	373	269	131	92
Saux	kWh	1247	221	158	88	79	45	21	20	18	39	114	202	242
Qdem	kWh	3234	300	274	300	280	275	252	249	246	241	260	266	289
Qdef	kWh	102	8	7	8	8	8	9	9	10	9	9	9	9

SFn: Fraction of solar energy to system (net), Qsol: Solar energy to the system, Saux: Auxiliary energy in tank, Qdem: Energy demand, Qdef: Energy deficit

### Fraction of solar energy to system (net) [%]



### Solar yield and auxiliary energy [kWh]



Daily maximum collector temperature [ °C]

