



## System overview

### Meteorological data

Properties	Value, unit	Properties	Value, unit
Outdoor temperature	59.8 °F	Global irradiance	508.9 kBtu/ft <sup>2</sup>
Diffuse irradiance	216.8 kBtu/ft <sup>2</sup>	Long wavelength irradiance	918.7 kBtu/ft <sup>2</sup>
Wind speed	0.84 ft/s	Air humidity	70 %
Outdoor temperature 24-h-mean	59.8 °F	Standard outdoor temperature	12.2 °F
Normal direct irradiance	523.9 kBtu/ft <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			1290.7 gal/d	122 °F	249977.2 kBtu/Year

### Definition of the solar system

Element	Cat. n.	Name	Properties, Value, unit
Collector North America	9171	24x Solarhot S-SC-126P32	Data Source: SRCC
Boiler	3	Gas boiler, large	Power: 238.91 kBtu/hr, Efficiency value: 90%
Pipe 16	32	Copper pipe 22x1	-
External heat exchanger	3	Plate heat exchanger, large	Transfer capacity: 17000 W/K, Number of heat exchanger plates: 30
Storage tank 2	1040	Tank 40	Volume: 528.3 gal, Thickness of insulation: 3.15 in
Storage tank 3	564	300l potable water tank	Volume: 79.3 gal, Thickness of insulation: 3.15 in
Mixing valve controller			Definition temperature setting: Variable value, Temperature shift: 3.6 R
Pump controller solar loop			Maximum tank temperature: 190 °F, Cut-in temperature difference: 10.8 R, Cut-off temperature difference: 3.6 R, Definition flow rate setting: Specific flow rate
Auxiliary heating controller 2			Reference for temperature sensors 1: Variable value, Minimum operation time: 10 min, Minimum downtime: 0 min
Auxiliary heating controller 3			Reference for temperature sensors 1: Fixed value, Minimum operation time: 0 min, Minimum downtime: 0 min

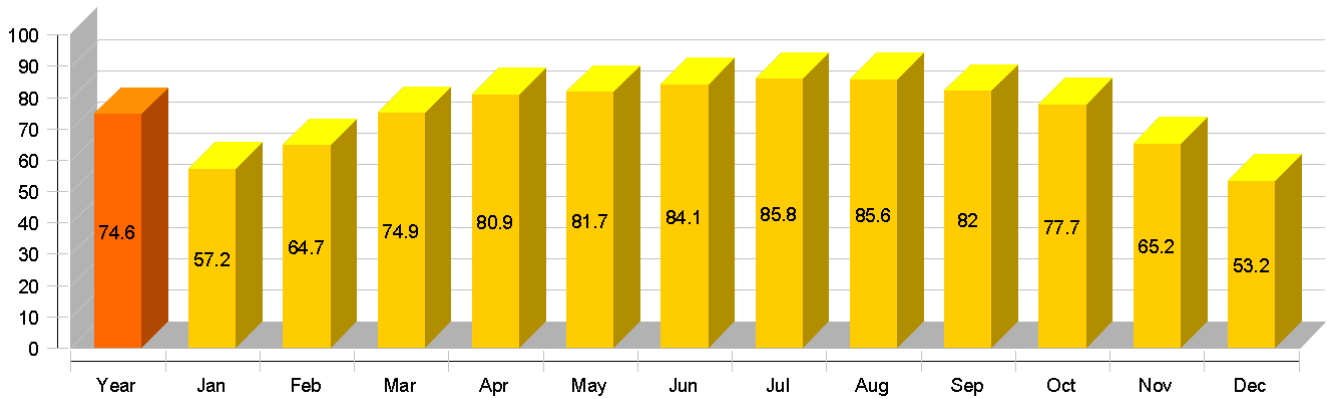
## Results overview

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

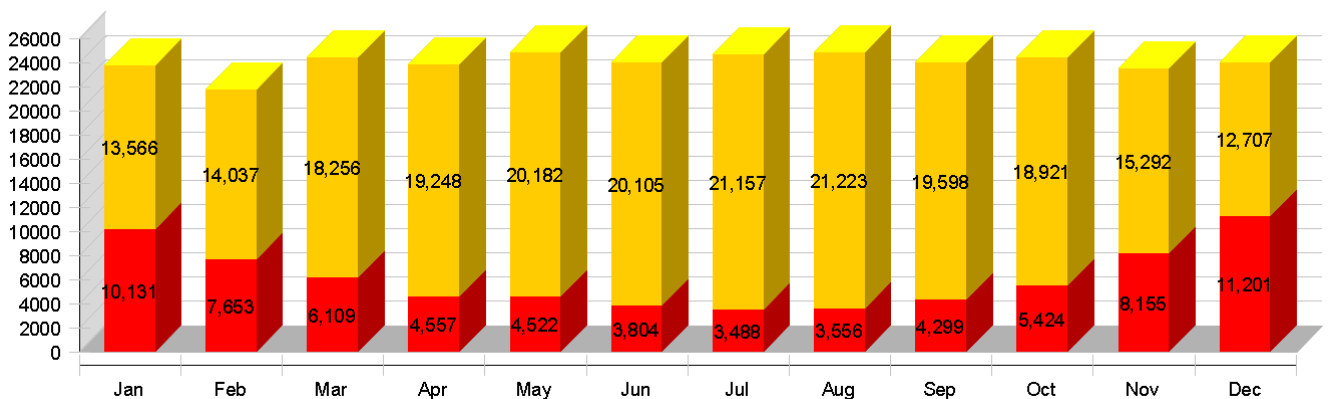
Symbol	Unit	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SFn	%	74.6	57.2	64.7	74.9	80.9	81.7	84.1	85.8	85.6	82	77.7	65.2	53.2
Qsol	kBtu	214290	13566	14037	18256	19248	20182	20105	21157	21223	19598	18921	15292	12707
Qaux	kBtu	72900	10131	7653	6109	4557	4522	3804	3488	3556	4299	5424	8155	11201
Qdem	kBtu	249977	23485	22682	25655	24302	23485	20569	19025	17398	16312	17398	18411	21254
Qdef	kBtu	5672	1051	691	585	325	295	219	210	200	390	420	530	756

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

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



### Solar yield and auxiliary energy [kBtu]



Daily maximum collector temperature [ °F]

