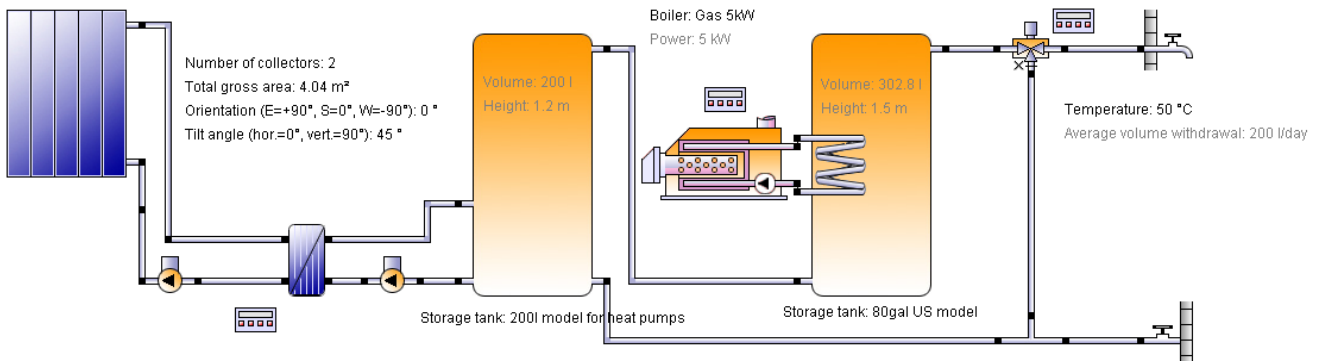


## Dimplex 2 Panel System

## 8t: Hot water (solar thermal, pre-heating tank)



### Location of the system

Canada

Kelowna

Longitude: -119.48°

Latitude: 49.9°

Elevation: 415 m

### This report has been created by:

Swiss Solar Tech Ltd / Pro Eco Energy

Roger Huber

5811 Giants Head Road

V0H 1Z7 Summerland

1-250-404-0490, rhuber@swissolartech.com

### Photograph of property



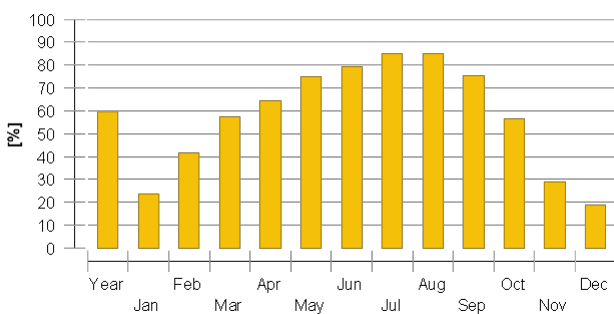
## System overview (annual values)

Total fuel and/or electricity consumption of the system [Etot]	2,619.7 kWh
Total energy consumption [Quse]	3,596.5 kWh
System performance $[(Quse+Einv) / (Eaux+Epar)]$	1.37
Comfort demand	Energy demand covered

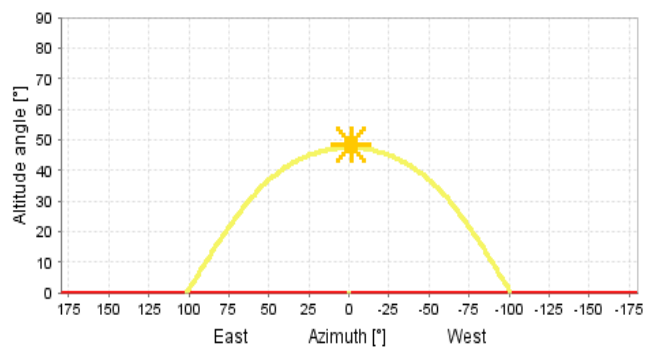
## Overview solar thermal energy (annual values)

Collector area	4 m <sup>2</sup>
Solar fraction total	59.3%
Total annual field yield	2,689.7 kWh
Collector field yield relating to gross area	665.8 kWh/m <sup>2</sup> /Year
Collector field yield relating to aperture area	724.6 kWh/m <sup>2</sup> /Year
Max. fuel savings	284.6 m <sup>3</sup> (gas): [Natural gas H]
Max. energy savings	2,988.5 kWh
Max. reduction in CO2 emissions	692.1 kg

## Solar fraction: fraction of solar energy to system [SFn]



## Horizon line



## Meteorological data-Overview

Average outdoor temperature	8.2 °C
Global irradiation, annual sum	1,342.8 kWh/m <sup>2</sup>
Diffuse irradiation, annual sum	501.3 kWh/m <sup>2</sup>

## Component overview (annual values)

<b>Boiler</b>		<b>Gas 5kW</b>	
Power	kW		5
Total efficiency	%		72.6
Energy from/to the system [Qaux]	kWh		1,846.8
Fuel and electricity consumption [Eaux]	kWh		2,543.2
Fuel consumption of the back-up boiler [Baux]	m <sup>3</sup> (gas)		242.2
Energy savings solar thermal	kWh		2,988.5
CO2 savings solar thermal	kg		692.1
Fuel savings solar thermal	m <sup>3</sup> (gas)		284.6
<b>Collector North America</b>		<b>DSCA-2M</b>	
Data Source			SRCC
Number of collectors			2
Number of arrays			1
Total gross area	m <sup>2</sup>		4.04
Total aperture area	m <sup>2</sup>		3.712
Total absorber area	m <sup>2</sup>		3.71
Tilt angle (hor.=0°, vert.=90°)	°		45
Orientation (E=+90°, S=0°, W=-90°)	°		0
Collector field yield [Qsol]	kWh		2,689.7
Irradiation onto collector area [Esol]	kWh		6,586.3
Collector efficiency [Qsol / Esol]	%		40.8
Direct irradiation after IAM	kWh		4,220.2
Diffuse irradiation after IAM	kWh		2,104.8
<b>Hot water demand</b>		<b>Daily peaks</b>	
Volume withdrawal/daily consumption	l/d		202
Temperature setting	°C		50
Energy demand [Qdem]	kWh		3,580.8
<b>External heat exchanger</b>		<b>small</b>	
Transfer capacity	W/K		5,000
<b>Pump Solar loop</b>		<b>Eco, small</b>	
Circuit pressure drop	bar		0.004
Flow rate	l/h		55.7
Fuel and electricity consumption [Epar]	kWh		38.3

<b>Pump Transfer circuit</b>	<b>Eco, small</b>	
Circuit pressure drop	bar	0.006
Flow rate	l/h	55.7
Fuel and electricity consumption [Epar]	kWh	38.3

<b>Storage tank Stand-by storage tank</b>	<b>80gal US model</b>	
Volume	l	302.8
Height	m	1.5
Material		Enameled steel
Insulation		Flexible polyurethane foam
Thickness of insulation	mm	101.6
Heat loss	kWh	231.9
Connection losses	kWh	189.9

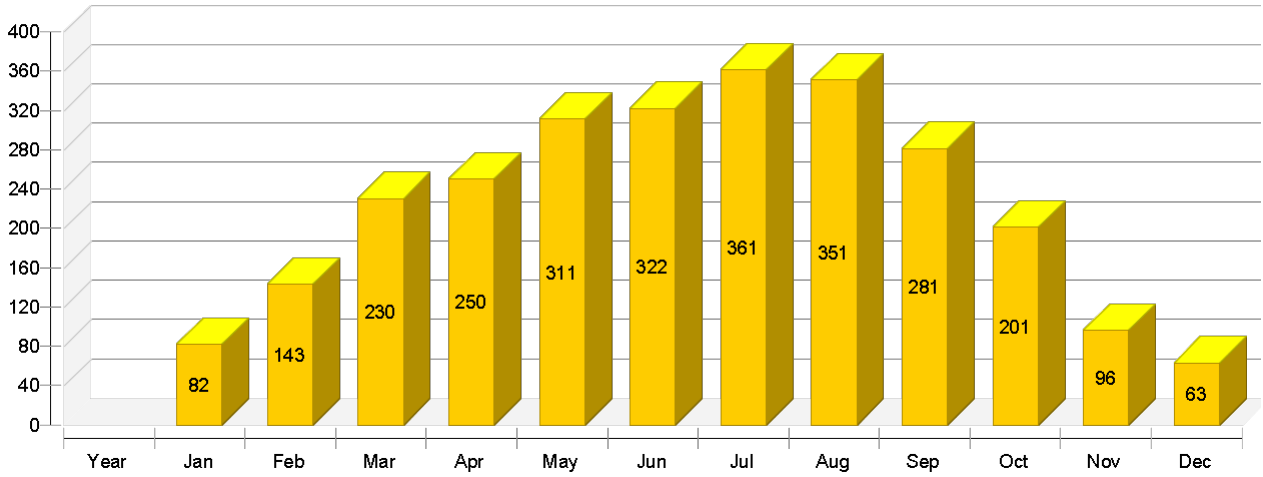
<b>Storage tank Solar tank</b>	<b>200l model for heat pumps</b>	
Volume	l	200
Height	m	1.2
Material		Stainless steel
Insulation		Rigid PU foam
Thickness of insulation	mm	80
Heat loss	kWh	32.7
Connection losses	kWh	-8.5

## Loop

<b>Solar loop</b>		
Fluid mixture		Propylene mixture
Fluid concentration	%	33.3
Fluid domains volume	l	30
Pressure on top of the circuit	bar	4

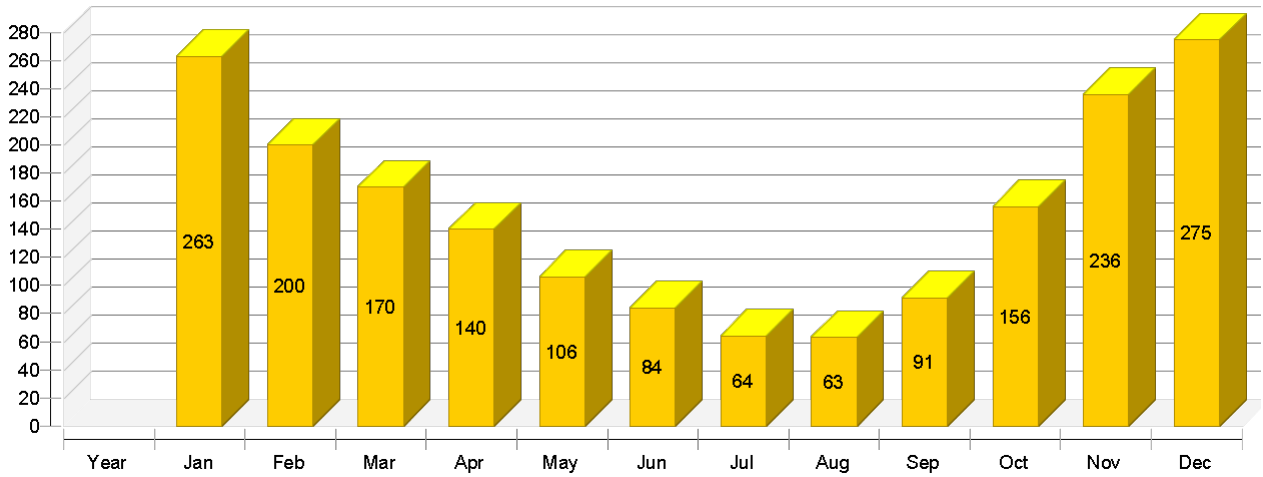
Solar thermal energy to the system [Qsol]

kWh



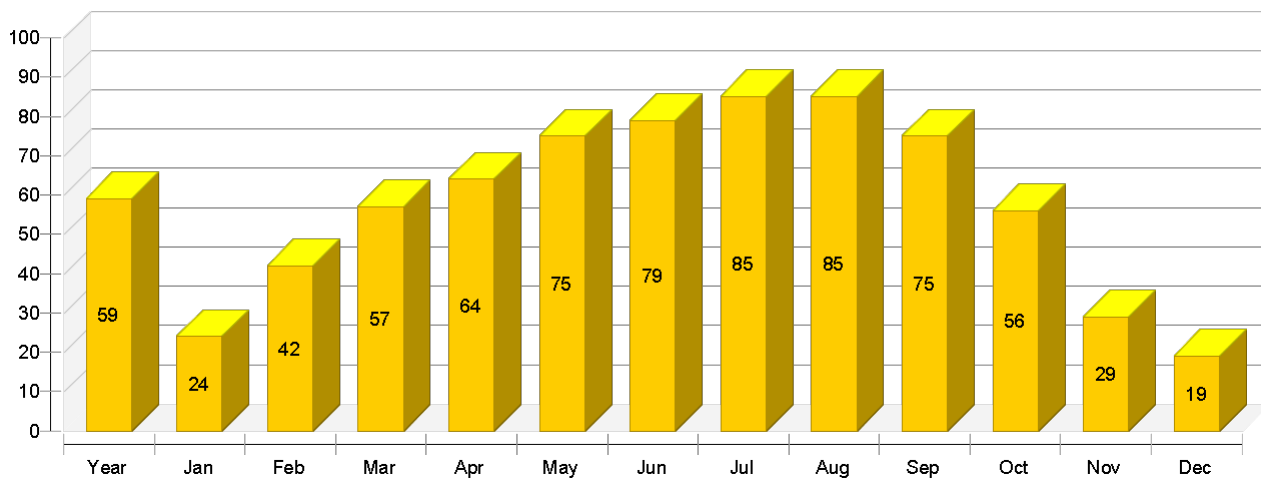
Heat generator energy to the system (solar thermal energy not included) [Qaux]

kWh



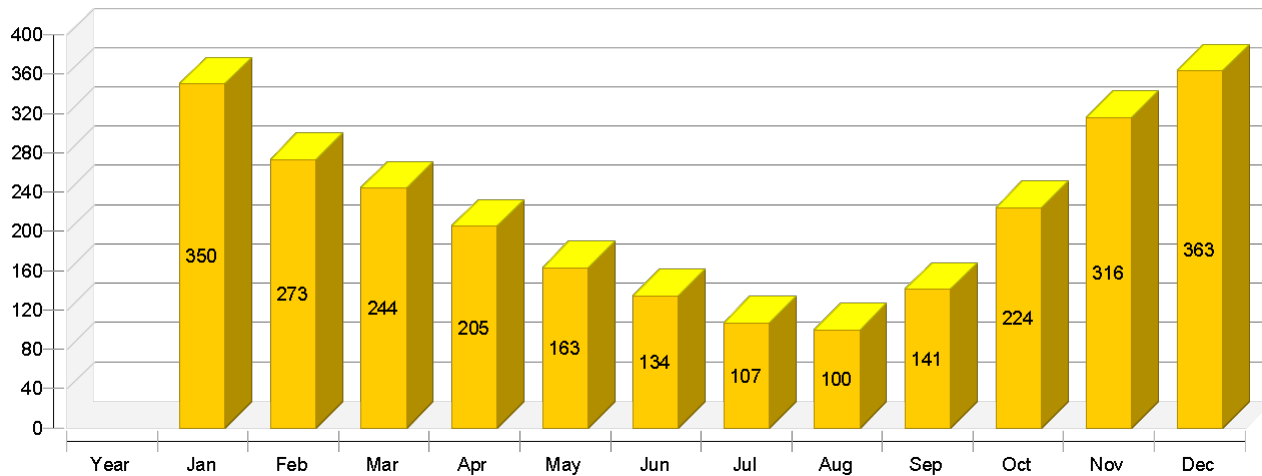
Solar fraction: fraction of solar energy to system [SFn]

%



## Total fuel and/or electricity consumption of the system [Etot]

kWh



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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### Solar thermal energy to the system [Qsol]

kWh	2690	82	143	230	250	311	322	361	351	281	201	96	63
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### Heat generator energy to the system (solar thermal energy not included) [Qaux]

kWh	1847	263	200	170	140	106	84	64	63	91	156	236	275
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### Heat generator fuel and electricity consumption [Eaux]

kWh	2543	346	268	236	197	155	125	99	92	134	218	313	360
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### Solar fraction: fraction of solar energy to system [SFn]

%	59.3	23.7	41.6	57.5	64.1	74.7	79.3	85	84.9	75.4	56.3	28.9	18.6
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### Total fuel and/or electricity consumption of the system [Etot]

kWh	2620	350	273	244	205	163	134	107	100	141	224	316	363
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### Irradiation onto collector area [Esol]

kWh	6586	260	406	610	627	740	739	786	772	664	511	273	198
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### Electricity consumption of pumps [Epar]

kWh	76.5	3.7	4.8	7.2	7.7	8.6	8.6	8.8	8.7	6.9	5.5	3.5	2.7
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### Total energy consumption [Quse]

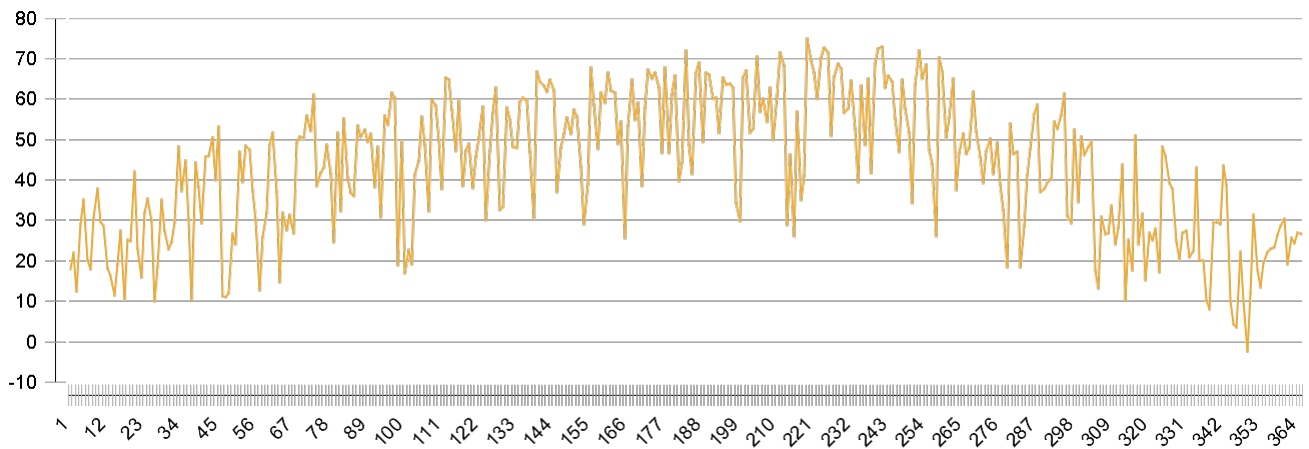
kWh	3597	332	307	339	319	313	286	279	271	263	282	289	316
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### Heat loss to indoor room (including heat generator losses) [Qint]

kWh	1713	104	104	131	137	161	170	186	181	163	148	118	110
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## Collector North America

### Daily maximum temperature [ °C]



### Energy flow diagram (annual balance)

