

# Case Study

## Residential Pre-Heating - Marin, Switzerland



### Overview

This is a solar pre-heating system installed in 2007 for a residential house. It was a retrofitting system of an old oil & wood boiler water heating system which was designed and have been in use since 1986.

This installation was designed and installed by AR-THERM, the Apricus partner in Switzerland. It's a closed loop solar water heating system, with 4 Apricus AP-30 solar collectors pre-heating the hot water in a twin coils storage tank.



### Project Summary:

Property Name:	Residential Domestic & Space Pre-heating
Location:	Marin, Switzerland
Array Size:	4 x AP-30 collectors
Annual Energy Output:	>3000 kWh
Annual CO <sub>2</sub> Offset:	>6.8 metric tonnes
System Format:	Closed Loop
Application:	Domestic Pre-Heating
Backup Heating:	Oil boiler & Wood Boiler
Annual Fuel Oil Saving:	1,000L

\* AP-30 is an Apricus old model solar collector, the updated model is ETC-30.

### Contact Information:

Apricus: [www.apricus.com](http://www.apricus.com)

### Apricus AP-30 Specifications:

Dimensions:	2.0m x 2.2m
Aperture Area:	2.98m <sup>2</sup>
Gross Area:	4.4m <sup>2</sup>
Gross Dry Weight:	95kg
Max. Pressure:	8bar
Stagnation Temperature:	220°C

### Customer Feedback in 13 Years

- 1) System is still operating with similar efficiency, which is at least 3,000kWh heat energy for hot water supply, which is basically equivalent of 1,000L oil savings a year;
- 2) Only one vacuum tube was changed 9 years after the installation due to accumulation of ice on the roof in winter, which customer had expected much more problems with ice & snow;
- 3) System is over sized for summer use so the collectors are over-heated in summer, which however does not affect the life span of the collectors. (Because Apricus collectors are designed with over-heating handling.)



**AR-THERM**

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