

Project summary

Hotel Novotel Sophia Antipolis Valbonne France



Description

Aware of the importance of sustainability notion for tourism industry, the ACCOR company whose this hotel is a member, has carried on, since 1993, an approach for a coherent environmental policy. In 1999, a cooperation contract to develop renewable energies has been signed with the ADEME. Solar installation also answers to the seasonal nature of the hotel activity, by optimising the realised investment and answering to clientele concerns more and more sensitive to the environment protection. CSTS has been sized to cover 49 % of energetic needs for hot tap water production with 113 m² of collectors linked with two solar tanks of 3,000 l each.

Building

Type of building	Hotel
Number of users / dwellings, floors	97 dwellings 3 floors
Year of construction	n. a.
Total effective area (heated)	n. a. m ²
Hot tap water consumption (measured)	2,642 m ³ /a,
Whole energy consumption for heating purpose after CSTS implementation	100,200 kWh/a

System engineering

Year of construction of CSTS	1999
Type of collectors	Flat plate collectors
Thermal power	76 kW _{therm}
Aperture area of collectors ^{*)}	108 m ²
Buffer storage	6.0 m ³
Hot tap water storage	15.0 m ³
Total capacity of boilers	n. a. kW
Type of hot tap water heating	Centralised
Type of heating system	Centralised

Costs

Total cost solar system	84,500 Euro
Cost of CSTS / gross area of collectors	745 Euro/m ²
Subsidies	73 %

Output

Output of solar heat ^{**)}	89,920 kWh/a
Reduction of final energy ^{***)}	94,650 kWh/a
CO ₂ -emissions avoided	11 t CO ₂ /a
Solar performance guarantee	Yes

^{*)} Aperture area = light transmitting area of the front glass

^{**)} measured, between storage and piping to taps (solar system output)

^{***)} related to the measured output mentioned before

Mr. Gabel, Hotel Novotel Sophia Antipolis Director:

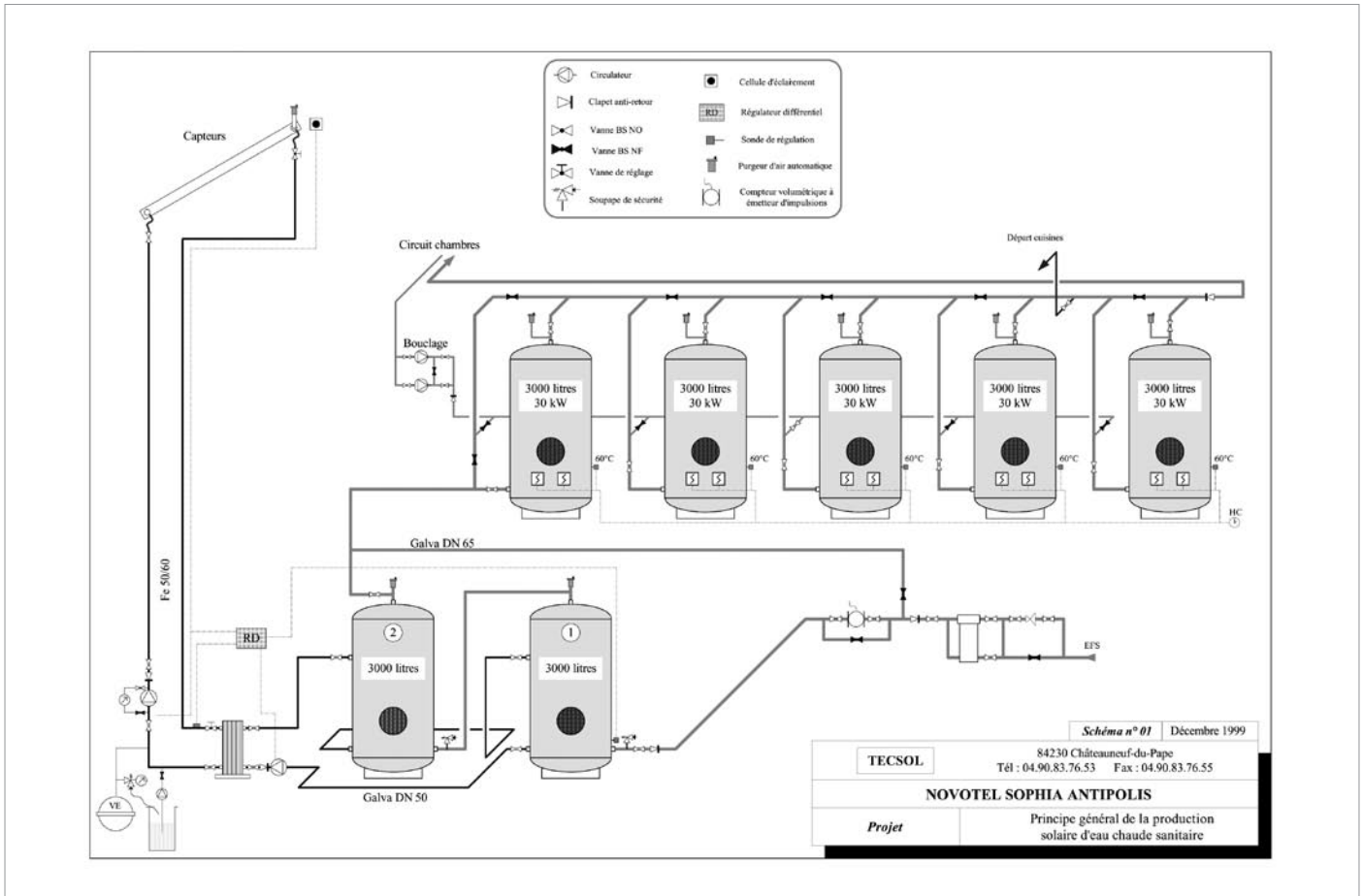
„Solar installation has been realised with the help of the ACCOR Group intention to be involved in a sustainable policy and to develop the brand image of the hotel.“

Owner

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Operator

See owner



Description of the CSTS

Year of construction of CSTS	1999
Thermal power	76 kW _{therm.}
Gross area of collectors	113.4 m ²
Aperture area of collectors	108 m ²
Type of collectors	Flat plate collectors
Type of assembly	On flat roof
Orientation of collectors	South (0°)
Inclination angle to horizon	30°
Freezing protection	Glycol
Overheating protection	Expansion vessel
Operation mode	Variable
Use of CSTS for	Hot tap water heating
Buffer storage	6.0 m ³ (2 × 3,000 l)
Hot tap water storage	15.0 m ³ (5 × 3,000 l)
Control of backup-system / CSTS	Separated control

Technical description (2)

Hotel Novotel Sophia Antipolis
Valbonne
France

Hot tap water system

Type of hot water heating	Centralised
Recirculation system	Yes
For decentralised systems:	./.
The installation on the consumer site	
Size of storage for hot tap water	15 m ³
Specification	./.

Space heating system

Type of heating system	Centralised
Number of boilers	n. a.
Total capacity (power output) of boilers	n. a. kW
Capacity of each boiler and the year of construction	n. a. kW(year)
Energy source	Electricity
Type of boiler system	n. a.

Type of operation

Operator of the CSTS system	Self-operation
CSTS monitoring	Yes: solar radiation, output of solar heat
Data accessible via internet	Yes
Scientific monitoring / follow up	Yes
Maintenance contract	Yes: twice a year
Visualisation of the solar heat output	Yes: data are edited each month and sent to all partners with data sheets and graphs

Yield of CSTS plant

Output of solar heat	89,920 kWh/a
Origin of data	Design
Measuring point	Between storage and piping to taps
Reduction of final energy	94,650 kWh/a
Origin of data	Feasibility study
Solar performance guarantee	Yes

Heat consumption

Whole energy consumption for heating purposes <i>after</i> CSTS implementation	100,200 kWh/a
Origin of data	Estimated
Energy used for	Hot tap water heat- ing
Whole energy consumption for heating purposes <i>before</i> CSTS implementation	194,850 kWh/a
Total tap water consumption	n. a. m ³ /a
Hot tap water consumption	2,642 m ³ /a,
Hot tap water temperature	60 °C
Cold water temperature	15 °C

Summary

CSTS was sized to cover 49 % of energetic needs for hot tap water production. 113 m² of collectors has been installed on the flat roof, facing south and with an inclination of 30 %. They are linked to two solar tanks of 3,000 l each. The back-up storage consists on five electric storage tanks of 3,000 l each.

< Monitoring can be done from afar by telephonic network and data are stored and edited every month for each project partner. The Tecsol engineering company supervises these data.

Engineering company

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Introduction

The total cost for this operation is of 84,505 € excluding VAT subsidised at 73 % by the ADEME and the PACA Regional Council with 61,742 €.

Financing of CSTS

Form of financing	Purchase
Distribution in percentage	73 %

< ADEME / PACA Regional Council subsidies

Costs of solar materials

Total cost of solar system	84,500 Euro
Detailed costs for	
Collectors	n. a. Euro
Elevation / mounting structure	n. a. Euro
Storage / heat exchanger	n. a. Euro
Backup heater	n. a. Euro
Control	n. a. Euro
Installation	n. a. Euro
Planning / Engineering	10,800 Euro
Others	n. a. Euro

Operation costs of heating system

Power cost for pumping	n. a. Euro/a
Maintenance cost	n. a. Euro/a
Monitoring cost	n. a. Euro/a
Other operation cost	n. a. Euro/a
Total operation cost	n. a. Euro/a
Or: Increase of operation cost after CSTS implementation	n. a. Euro/a



Experiences management

Experience problems or failures?	No
Find solutions to these problems or failures?	./.

Financial effects / project performance

Project economically efficient?	Yes
Fiscal or other financial effects?	No
Effects on rental fees?	No

Experiences technical staff

Experience problems or failures?	No
Find solutions to these problems or failures?	./.

Summary of experiences / Notices to the project performance

Aware of the importance of sustainability notion for tourism industry, the ACCOR Company whose this hotel is a member, has carried on, since 1993, an approach for a coherent environmental policy. In 1999, a cooperation contract to develop renewable energies has been signed with the ADEME. Measured solar output has each year exceeded guaranteed energy in the framework of solar performance guarantee.

Installer

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