WBG Neustadt

Neustadt an der Weinstraße, Germany

Multi-family house | 50 sqm installation

+++ photo gallery +++

Data acquisition is still in process!

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Project Summary

Description

Building

Type of building	Multi-family houses
Number of dwellings, floors	43 users 24 dwellings 3–4 floors
Year of construction	1977–79
Total effective area (heated)	1,485 m^2
Hot tap water consumption (measured/estimated)	583 m^3/a (measured)
Whole energy consumption for heating purpose after CSTS implementation	170,766 kWh/a

System engineering

Year of construction of CSTS	2005
Type of collectors	Flat plate collectors
Thermal power	32 $kW_{therm.}$
Aperture area of collectors*)	46 m^2
Buffer storage	1.9 m^3
Hot tap water storage	0.4 m^3
Total capacity of boilers with energy source	142 kW, natural gas
Type of hot tap water heating	Centralised
Type of heating system	Centralised

Costs

Total cost solar system	112,000 Euro
Cost of the CSTS/gross area of collectors	2,222 Euro/m^2
Subsidies	0 %

Output

Output of solar heat**)	19,565 kWh/a
Reduction of final energy***)	137,000 kWh/a
CO_2-emissions avoided	33.8 t CO_2/a
Solar performance guarantee	No

*) 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

Owner

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Operator

see Owner

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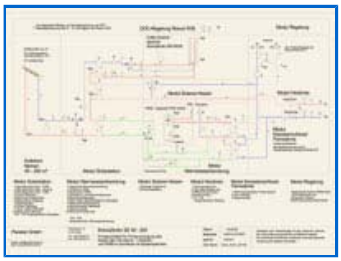
Technical description

Description of the CSTS

Year of construction of CSTS	2005
Thermal power	32.48 $kW_{therm.}$
Gross area of collectors	50.4 m^2
Aperture area of collectors	46.4
Type of collectors	Flat plate collectors
Type of assembly	Roof top
Orientation of collectors	West (+90°)
Inclination angle to horizon	38°
Freezing protection	Glycol
Overheating protection	Expansion vessel
Operation mode	Variable
Use of CSTS for	Hot tap water heating, space heating
Buffer storage	1.9 m^3 (2×950 l, stratifying buffer storage

Summary



	tanks, SOLVIS)
Hot tap water storage	0.4 m^3 (1×400 l)
Control of backup-system/CSTS	Shared control: SOLVIS Regieregler

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	0.4 m^3
Specification (if necessary)	./.

Space heating system

Type of heating system	Centralised
Number of boilers	1
Total capacity (power output) of boilers	142 kW
Capacity of each boiler (year of construction)	No. 1: 142 kW (2004)
Energy source	Natural gas
Type of boiler system	Condensed

Type of operation

Operator of the CSTS system	Self-operation
CSTS monitoring	Yes: solar energy output, total tap water consumption, space heating and hot tap water (calorimeters)
Data accessible via internet	Yes
Scientific monitoring & follow up	Yes
Maintenance contract	Yes: once a year
Visualisation of the solar heat output	No

Yield of CSTS plant

Output of solar heat	19,565
Origin of data	Measured
Measuring point	Between collector and storage
Reduction of final energy	137,000 kWh/a (total refurbishment measures!)
Origin of data	Billing notes 2003/05
Solar performance guarantee	No

Heat consumption

Whole energy consumption for heating purposes after CSTS implementation	170,766 kWh/a
Origin of data	Measured
Energy used for heating of	Hot tap water heating, space heating
Whole energy consumption for heating purposes before CSTS implementation	380,254
Total tap water consumption	1,435 m^3/a
Hot tap water consumption	538 m^3/a
Hot tap water temperature	60 °C
Cold water temperature	10 °C

Engineering

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Financing and investment

Financing of the CSTS	
Form of financing	Purchase
Distribution in percentage	0 %
Costs of solar materials	
Total cost of solar system	112,000 Euro
Detailed costs for	
Collectors	10,838 Euro
Elevation/mounting structure	1,489 Euro
Storage, heat exchanger	1,648 Euro
Back-up heater	9,297 Euro
Control	7,067 Euro
Installation	35,000 Euro
Planning/Engineering	./.
Others (SolvisZentro)	34,500 Euro
Operation costs of heating system	
Power cost for pumping	not available
Maintenance cost	included
Monitoring cost	114 Euro/a
Other operation cost	not available
Total operation cost	1,108.58 Euro

Special note for subsidy systems in the partner country

Addresses

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Development & experiences

Experiences management

Experienced problems or failures?	No
Found 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

Experienced problems or failures?	No
Found solutions to these problems or failures?	./.

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Downloads

SOLARGE_goodpractice_de_wbgneustadt.pdf this datasheet in printable PDF-format	0.9 M
wbgneustadt_scheme.pdf the hydraulic scheme	46 K

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Photo gallery