klima:aktiv solarwärme

The Austrian approach for CSTS dissemination

klima:aktiv market stimulation programme, training and quality assurance

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AEE INTEC

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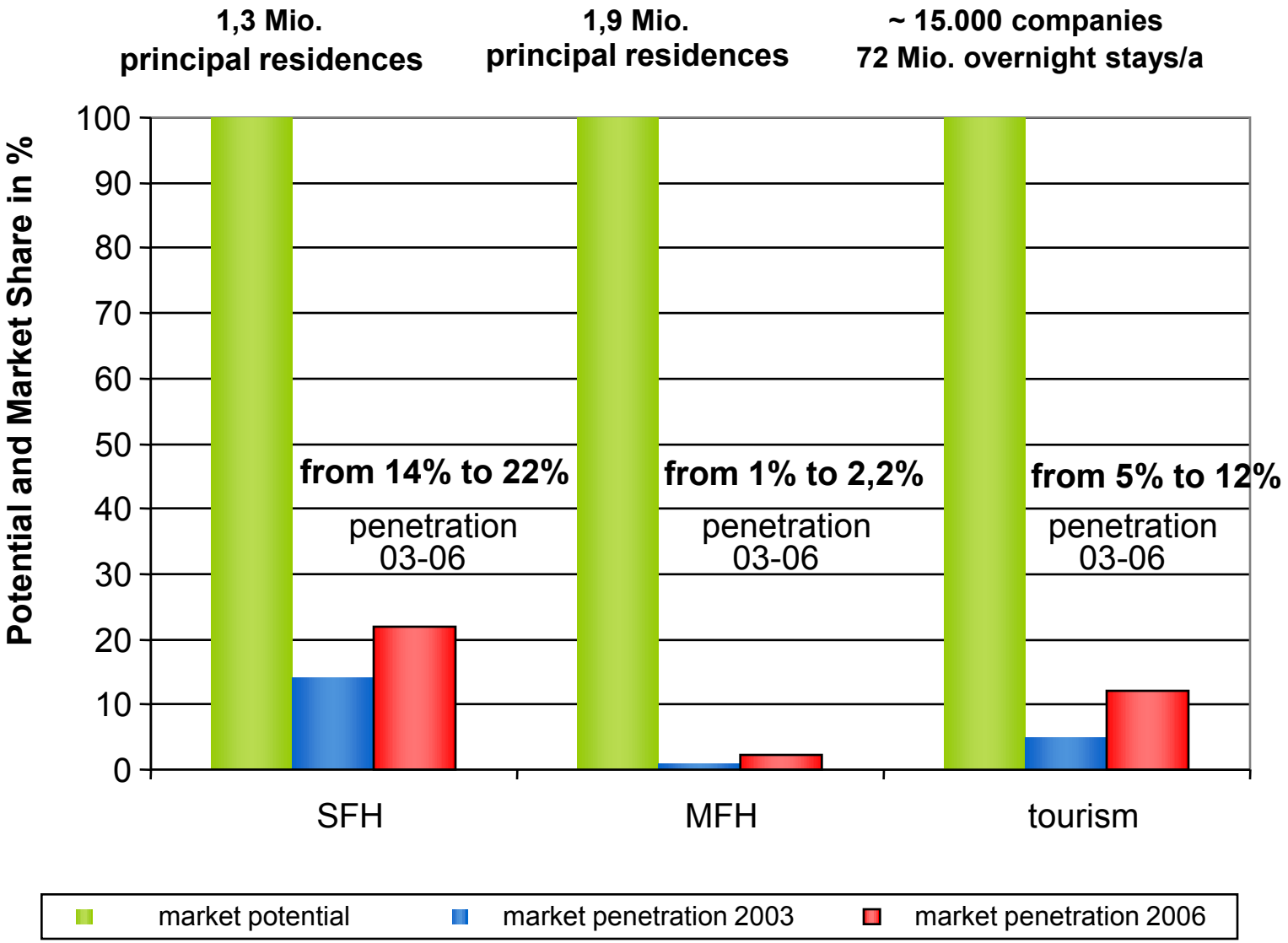
The effect in numbers – international comparison

Opening up new possibilities for applications (MFH, tourism, etc.) is the central factor of success for the rapid market growth at an already high density of solar thermal systems!

Source: ESTIF

The effect in numbers – market penetration



…what is the impact of **solar**wärme?

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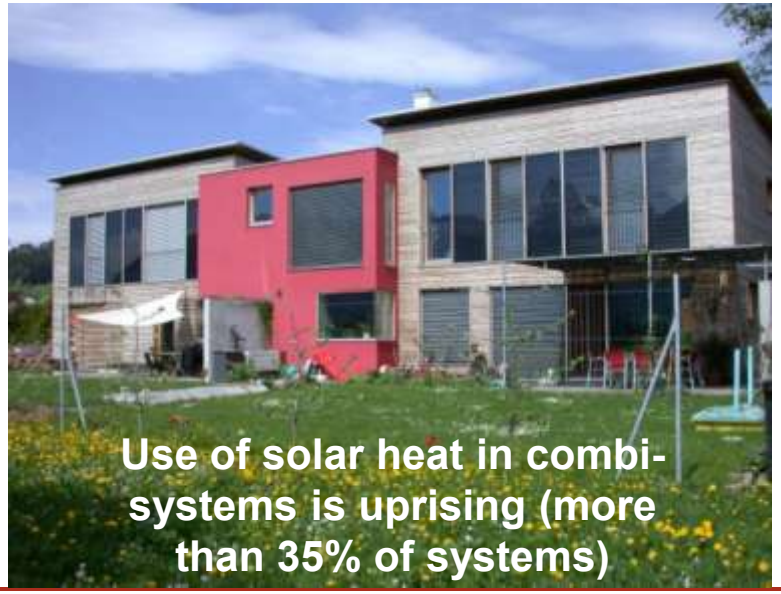
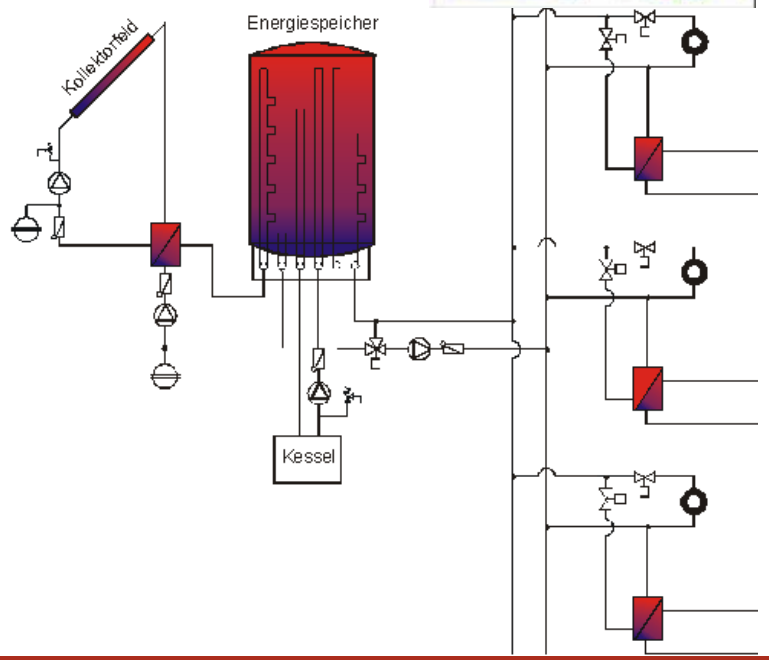
Doubling the installation in MFH
Picture: central office of a property developer

Tourism sector:
triplication of new installations



Quality enhancement

- **Specialized training**
  certified solar thermal installer/planner
  (CSTS as contentual core theme!)
  solar thermal consultant, business consulter, facility manager
- **Planning audits**
  accompaniment of project teams in construction projects of MFH and tourism facilities
- **Workshops for HVAC technicians**
  half-day workshops focusing on hydraulic concepts and the dimensioning of collective solar thermal systems
- **Intensification of R&D**
  series of workshop with Austrian solar industry, contribution to ESTTP and founding of ASTTP



Certified solar thermal installer/planner

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Curricula

- concepts for solar systems of all sizes and applications
- dimensioning of systems and components
- building integration
- installation and commissioning
- economics, subsidies, marketing

zertifizierter solarwärme installateur

zertifizierter solarwärme planer

Duration

- 64 units, written and oral examination
- official individual-certification under certain criteria possible

Costs

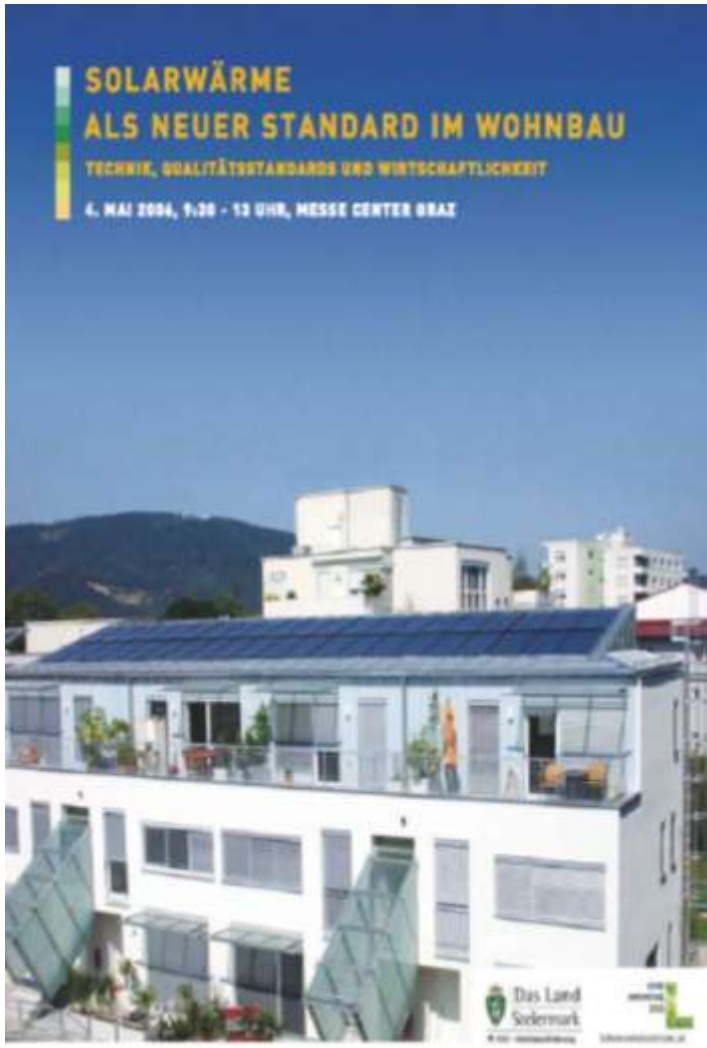
- € 1,200, plus € 150 examination fee

Results

- so far 350 alumni out of 18 courses
- 125 personal certificates granted
- 7 further courses in 2008 fixed

Frame conditions

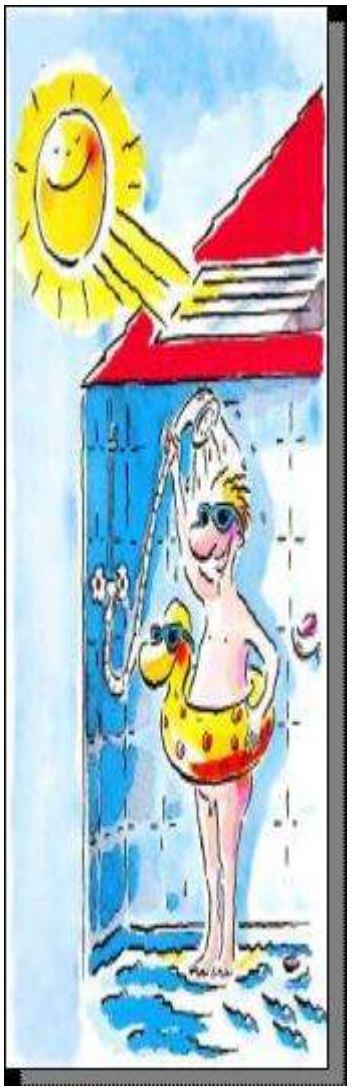
- **Stable, beneficial subsidy policy is a main success factor for the Austrian ST-market!**
- specific high quality information for public authorities (subsidies) & politicians to build on continuity and trust
- advise and support for development of adapted subsidy schemes for SFH, MFH, tourism facilities and sport infrastructure
- influencing the implementation of the EPBD with regards to the integration of solar thermal applications
- promoting federal solar obligations
- success story: in the federal province of Styria the installation of a solar thermal system is precondition for the granting of housing subsidies



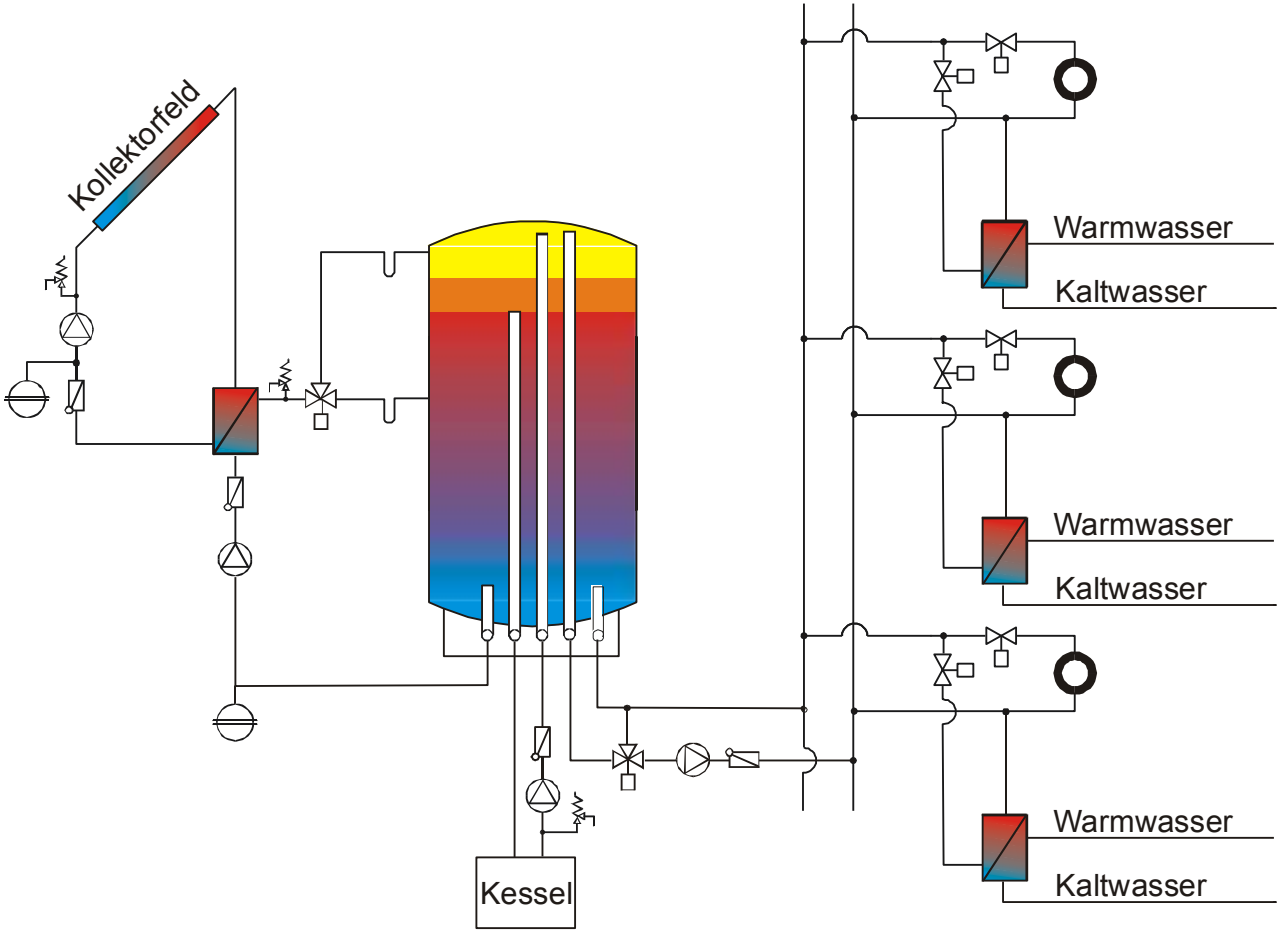
Establishment of new standards for CSTS

General frame conditions

- Solar thermal systems are being a standard application in new build multi family houses (establishment in subsidy schemes respectively as part of obligations)
- Approved hydraulic layout: „low flow“ solar combi-systems in connection with single solar heat storages wherever possible, 2-pipe-networks for heat distribution in connection with pre-fabricated appartement heat transfer units have established as good standard in new buildings
- Cost-benefit-optimised dimensioning with solar fractions between 15 und 20 % of the gross energy demand for Austrian climate
- The quality standard of single components and assembling has to be high
- Granting of solar results (most frequently as benchmark 350 kWh/m².a) is increasingly applied on the market



Hydraulic layout: Standardised and simple



- CSTS in low-flow-operation in connection with single solar storages
- Heat distribution via 2-pipe-network
- Domestic hot water heating decentralized by instantaneous flow heating
- Reasonable application with low and high energy densities

Advantages of 2-pipe-heat distribution

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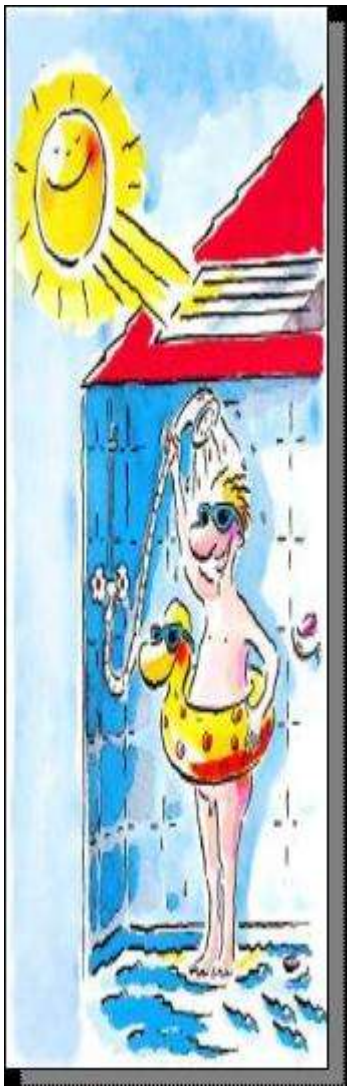
- Low back-flow temperatures at nearly constantly 30 °C facilitate the efficient operation ot the solar thermal system part
- Heat distribution losses are reduced to a minimum; subsequently high overal system efficiencies are possible
- Design-related, automatically a solar thermal support of space heating is accomplished
- Extensive analysis in Austria approved lower heat prices compared to solar thermal systems connected to 4-pipe-distribution of heat
- Enhancement of user comfort due to no limitation of domestic hot water consumption and no night set back
- Absolutely hygienic domestic hot water preparation
- Industrially pre-fabricated appartment units allow a standardised interface between solar and DHW; reduced risk of defects, no auxiliary power needed for operation



Metrologically accompanied field test

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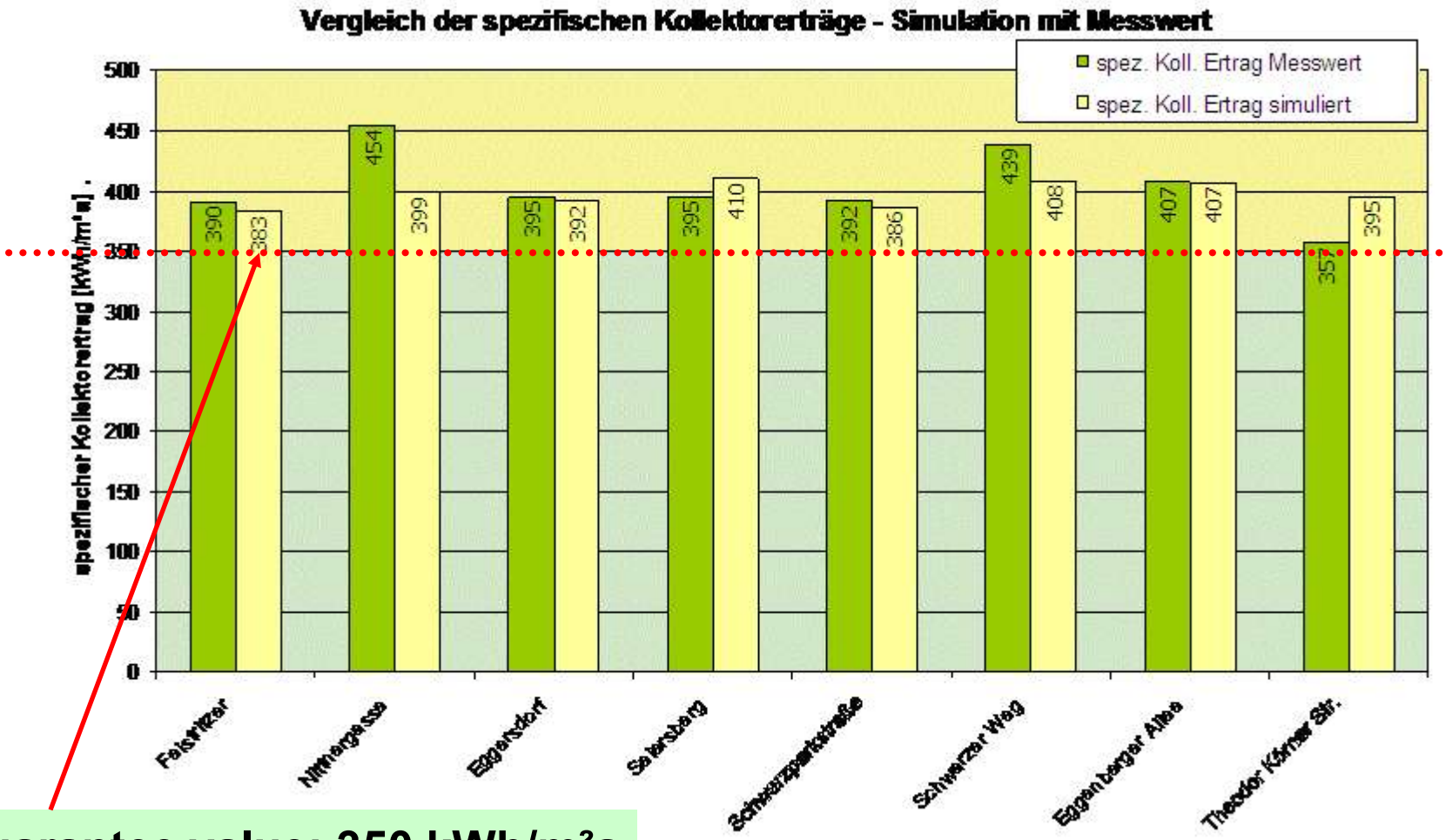
Basic data:

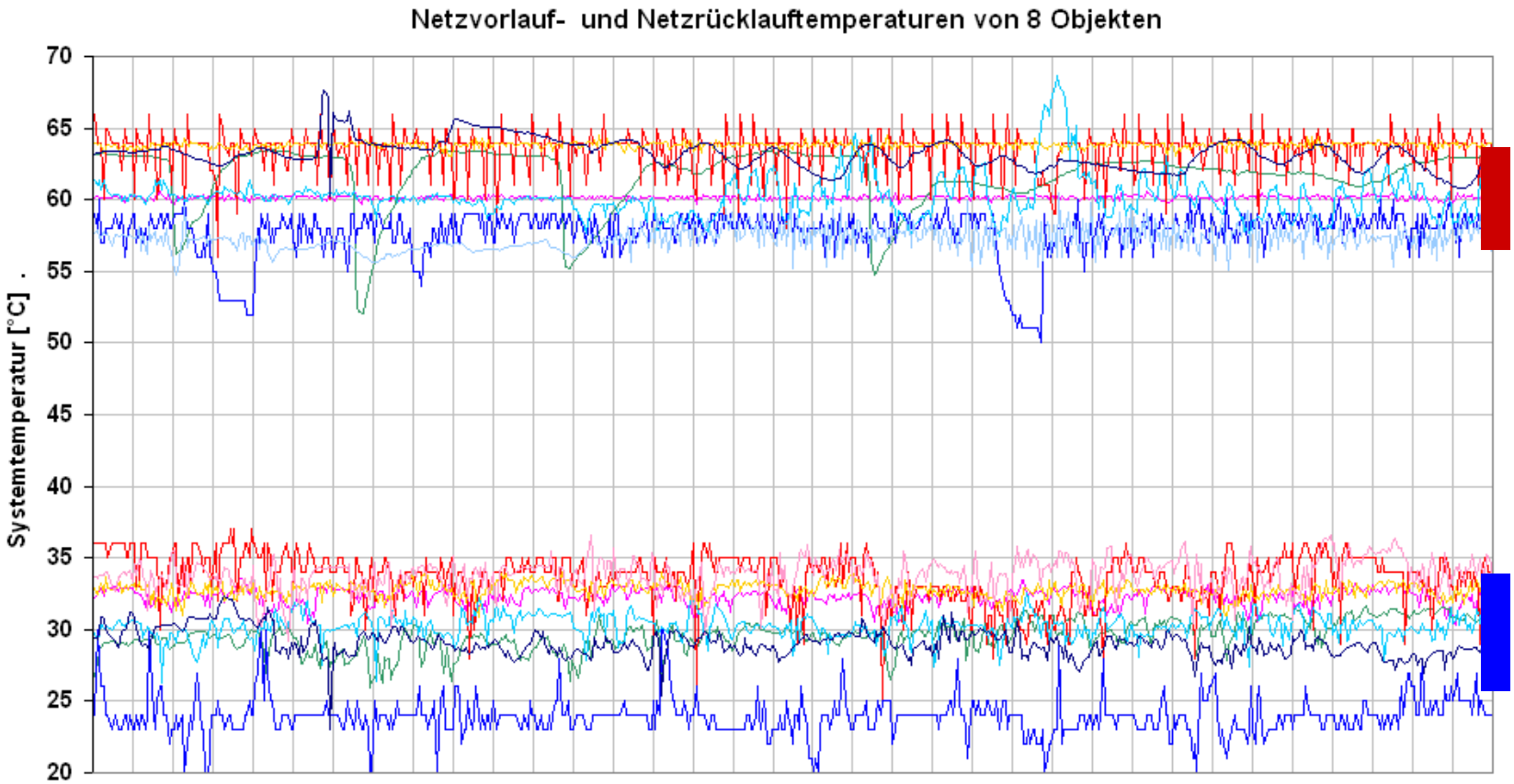
- 10 Multi family houses with 370 flats
- Heat distribution via 2-pipe-networks in all projects
- 1.160 m² collector surface (812 kW_{th}), 102 m³ storage volume
- Average solar fractions of 15 to 20 % of gross energy demand

Measured specific solar yields



Guarantee value: 350 kWh/m²a

Measured temperatures in distribution network



Back-flow temperatures around 30°C as basis for the efficient operation of solar thermal systems!

CSTS: factors of success / new organisational standards

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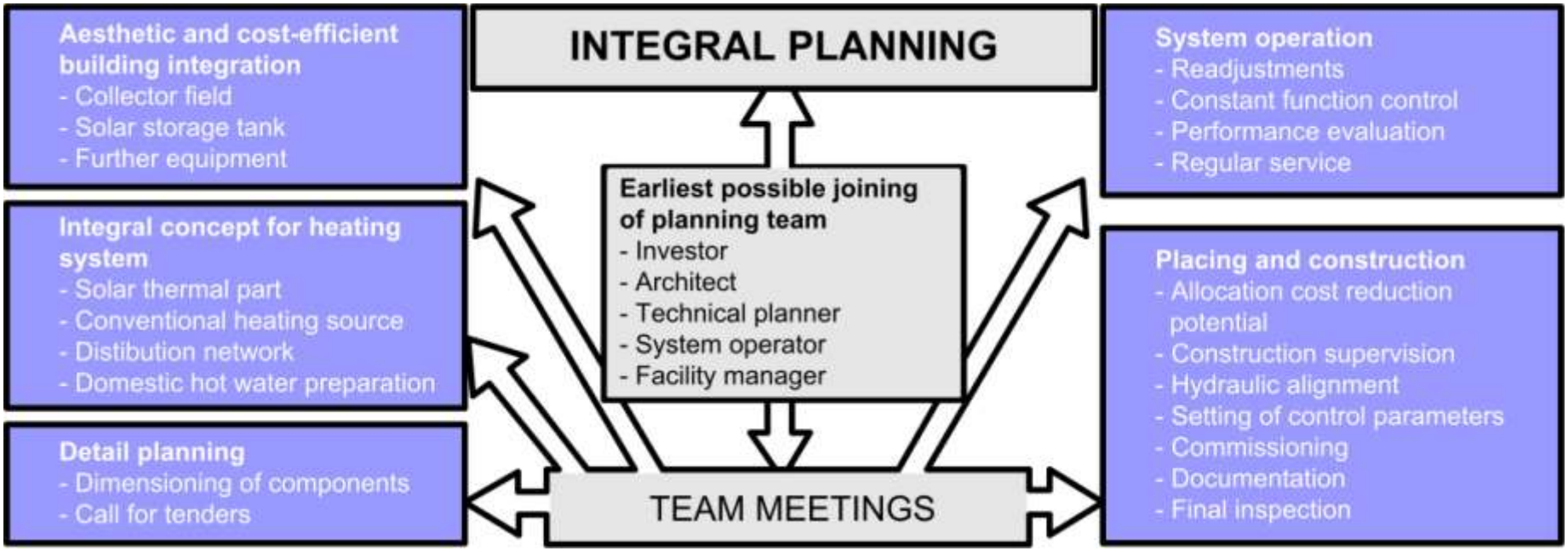
1. Integral approach for planning and conversion



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2. Documented comissioning of the total heating system by the installing company

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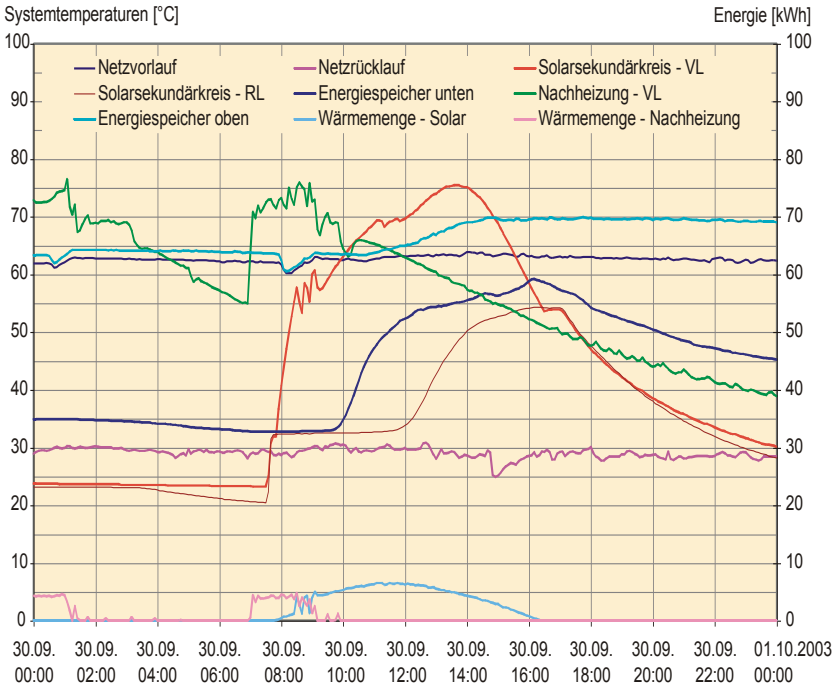
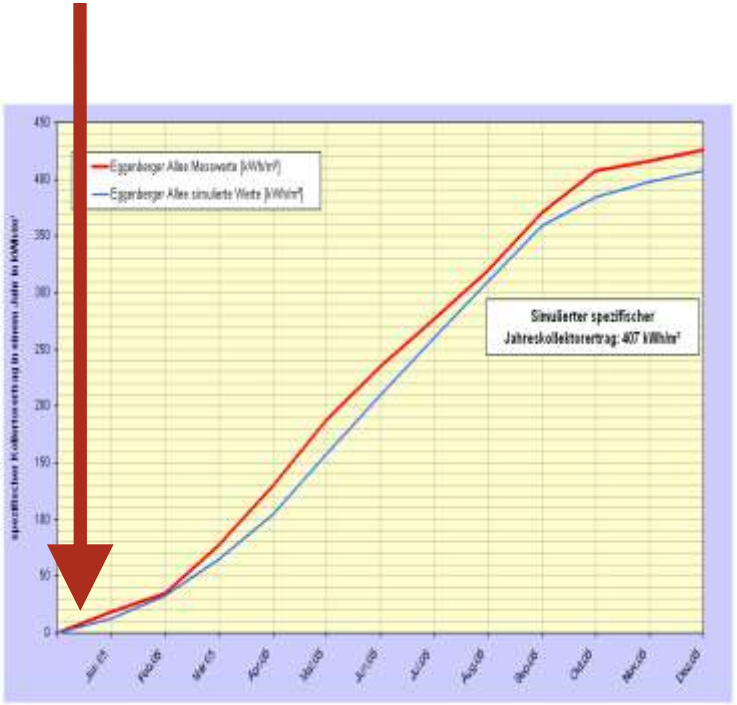
3. Monitoring and adaptions in the first weeks of operation „optimisation period“





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4. Technical acceptance after optimisation period

- During the technical acceptance, the accomplishment of the planning targets are checked
- The optimisation period should be determined to be accomplished before the technical acceptance ot the heating sytem

CSTS: factors of success / new organisational standards

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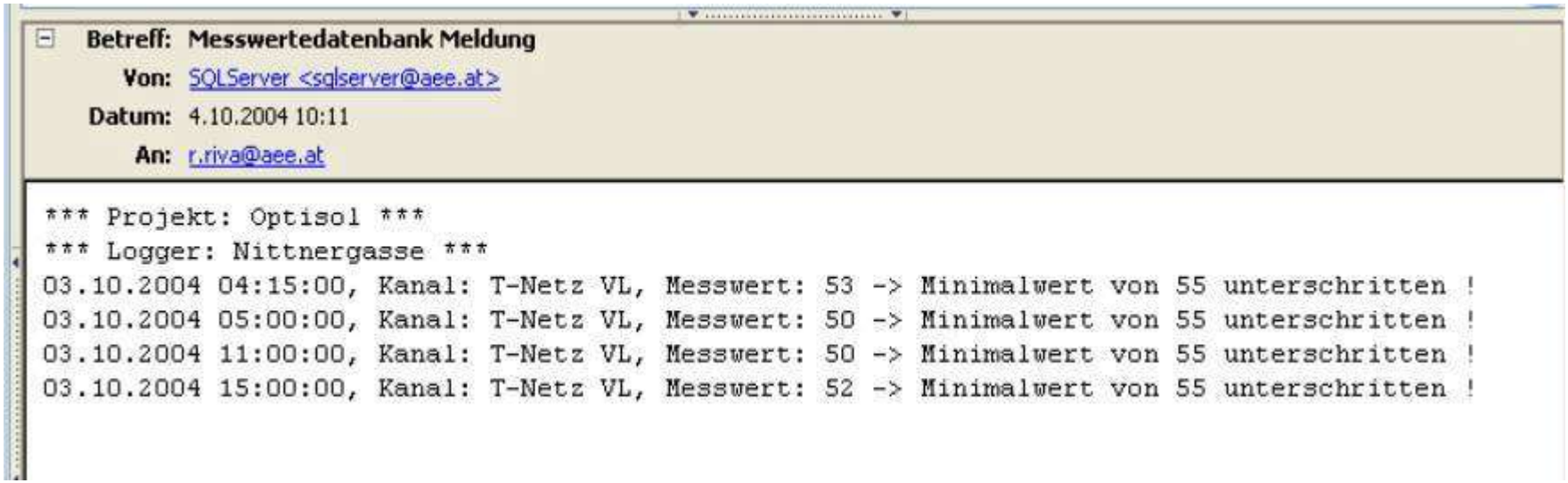
5. Coupling of the solar thermal system part to the routine system control of facility managers and integration of the solar thermal system in maintenance contracts for the heating system



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Von: SQLServer <sqlserver@aee.at>
Datum: 4.10.2004 10:11
An: r.riva@aee.at

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*** Projekt: Optisol ***
*** Logger: Nittnergasse ***
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03.10.2004 15:00:00, Kanal: T-Netz VL, Messwert: 52 -> Minimalwert von 55 unterschritten !
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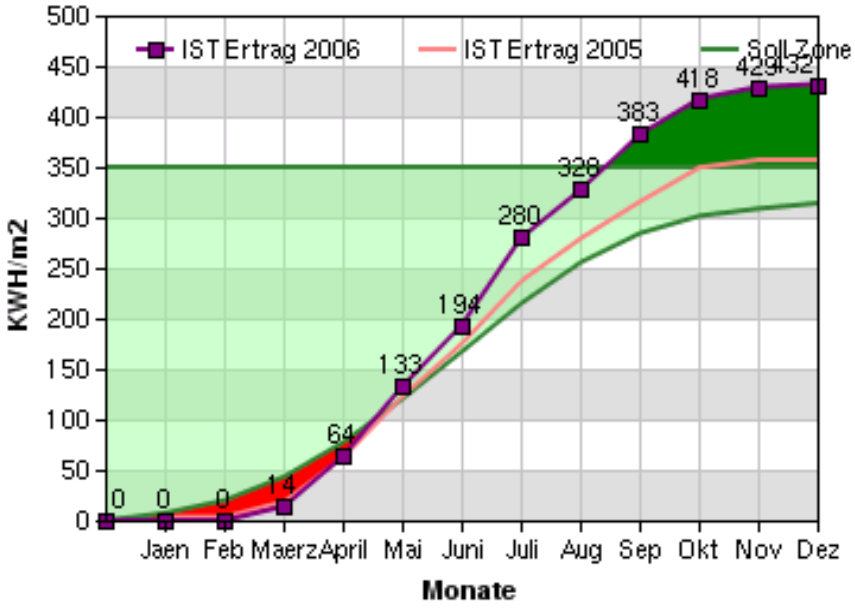
6. Contracts with determined minimum specific solar yields; clarification of responsibilities

- Most frequently with approved benchmark „function“ value of 350 kWh/m²a for multi family houses (in Austria increasingly guaranteed by experienced system operators)
- Also back-flow temperatures of the 2-pipe-network (max. 40°C) can be made part of the contract



CSTS: factors of success / new organisational standards

Initiative for quality assurance has to be administered by the investor:

- Ensurement of frame conditions for **integral planning process**
- Establishment **quality requirements** in call for tenders and contracts
- Initiation of frequent **operation monitoring** of the solar supported heating system

Reaching the goals together!

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