



QAiST

Quality Assurance in Solar Heating
and Cooling Technology

ESTIF S&C Workshop

Brussels, Belgium
2 December 2010



INTELLIGENT ENERGY
EUROPE



Work in Progress

- WP2: Solar thermal collectors
 - WP3: Solar thermal systems
 - WP4: Quality assurance of testing
 - WP5: New areas for quality assurance systems

Update on status of the Work Packages

WP2:

Solar thermal collectors

D 2.1 Performance of mid temperature collectors (CENER lead)

D 2.2 Durability of collectors and materials (ISE lead)



Broad consensus revision proposals for the EN12975 standard
which is to be revised in two steps:

- **First step** driven by EC request for CE marking. Draft for public inquiry ready in spring 2011, implemented in 2012
 - Contents are e.g. harmonized annex ZA, tracking collectors in the scope, improved exposure and rain penetration tests, “classes approach”, Task X method on selective coatings integrated
- **Second step** an EN ISO standard? Draft for public inquiry in 2012
 - Contents are e.g., focusing on ETC:s and further on collector materials

D 2.3 Guide to EN 12975 (SP lead, Due June 2011)

- Distribution of work and agreement on contents concluded
- Five main partners working on two deliverables --->>
 - LNEG-Durability
 - ISFH- SS testing of unglazed collectors
 - DEMOKRITOS- SS testing of glazed collectors
 - AIT- Definitions and interpretation of test results
 - SP –Quasi dynamic testing and the rest
- All remaining partners provide additional input and review



WP 2: Solar thermal collectors

T2.3 Performance calculation tool

- Already presented at last SKN meeting
- Currently being fine tuned by most partners
- Extension to unglazed and tracking/concentrating
- Foreseen for June 2011

Update on status of the Work Packages

WP3: Solar thermal systems

WP 3: Solar thermal systems

Improvement of the standards:

- **Factory Made Systems / Custom Built Systems**
(EN 12976 Part 1 and 2) / (CEN/TS 12977 Part 1,2,4 and 5 and EN 12977 Part 3)
 - **Clear separation of REQUIREMENTS and TEST METHODS**
 - **Clarification of applicable reliability tests (DIFFERENT TYPES of SYSTEMS):**
 - need of additional reliability tests.
 - **Clarification of the aspects related to documentation (USER; INSTALLER)**
 - For **Custom built systems**, possibility of future certification of Storage tanks and complete systems according to improved standards

WP 3: Solar thermal systems

Improvement of the standards (cont.)

- **Outcomes**
 - First proposals for above aspects on Factory Made Systems were prepared and presented in CEN TC 312 WG2/WG3 Meeting in Munich (June 2010);
 - Profiting from the ongoing Round Robin for Systems (QAiST – WP4), some aspects related to clarification of tests and of analyses of documentation are being addressed

WP 3: Solar thermal systems

Development of an extrapolation procedure

- that proves to be valid for different types of systems allowing for flexibility in the definition of families of systems and reducing test costs for the manufacturers

- **Outcomes:**

- Two different methodologies now available in Solar Keymark Scheme Rules
- Application of these methodologies by Labs
- Proposals for future revision expected

WP 3: Solar thermal systems

Development of a procedure for converting the test result into results valid for the “EU reference tapping cycles”

- necessary for Labeling of systems according to European Directive for Eco-Design
 - How to apply this procedure to tests performed with DST/CSTG test methodologies?

Outcomes:

- First application with DST for Factory Made and Custom Built Systems
- First proposal for application with CSTG test results – to be validated.

WP 3: Solar thermal systems

Definition of concept: Hot Water Comfort (STS)

- **Outcomes:**

- First document with the revision of the existing test methods for assessment of Hot Water Comfort was prepared
- Presentation and discussion at CEN TC 312 WG2/WG3 meeting / some additional methods suggested.

Update on status of the Work Packages

WP4:

Quality assurance of testing

WP 4: Quality assurance of testing

- ★ T 4.1 Solar Keymark Network
- ★ T 4.2 Round Robin performance testing thermal collectors according to EN 12975
- ★ T 4.3 Round Robin testing of factory made systems according to EN 12976

WP 4: Quality assurance of testing

★ T 4.1 Solar Keymark Network

- Support the work of the SKN
 - Rapperswil 15-16 March 2010
 - Graz, Austria 7-8 October 2010
 - Brussels, Belgium, 22-23 March 2011

WP 4: Quality assurance of testing

★ T 4.2 Round Robin Collector

- Organization, managing and evaluation by independent body (IfEP GmbH)
- 13 flat plate and 13 evacuated tubular collectors with CPC collectors
- Each participant test 2 collectors of both types (4 tests)
- Report to IfEP by 31.12.2010
- Rotation of the test collectors in winter 2010/2011
- Final results expected October 2011
- Participants: *CENER, CSTB, DEMOKRITOS, AIT, LNEG, IPIEO, ISE, ISFH, ITC, IZES, SP TÜV, ITW*

WP 4: Quality assurance of testing

★ T 4.2 Round Robin Collectors

- Additional participants
 - ASIC
 - Bosch Solarthermie GmbH
 - 6 North american test labs
- Collectors, transport, evaluation and all other expenses caused by the Round Robin will be covered by the additional participants
- In order not to influence the result of the QAIiST Round Robin the evaluation will be done in parallel by IfEP

WP 4: Quality assurance of testing

★ T 4.3 Round Robin Systems

- Managing and evaluation by independent body (IfEP GmbH)
- 9 thermosyphon and 9 forced circulation systems
- Each participant will test 2 systems (4 tests)
- Report to IfEP by 31.12.2010
- Rotation of the test collectors in winter 2010/2011
- Final results expected October 2011

- Participants: *CENER, CSTB, DEMOKRITOS, LNEG, ISE, ISFH, IZES, TÜV, ITW*

Update on status of the Work Packages

WP5: New areas for quality assurance systems

WP 5: New areas for quality assurance systems

Objectives

- **To develop a basic set of requirements and test methods for emerging areas of solar thermal energy**

Application is already on the market => need for quality assurance measures not covered by any standards so far e.g. large solar thermal systems, solar cooling

OR

Application is new on the market => no quality assurance measures existent yet e.g. combined solar & heat pump systems

WP 5: New areas for quality assurance systems

Structure of the WP

WP 5: New areas for quality assurance systems
Leader: Ivan Malenkovic, AIT

Task 5.1

Performance references and test methods for HP+ST

Leader: Ivan Malenkovic, AIT

Task 5.2

Function and yield controlling of large solar thermal systems

Leader: Klaus Vanoli, ISFH

Task 5.3

Quality requirements for solar cooling systems

Leader: Pilar Navarro, ITC

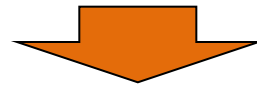
WP 5: New areas for quality assurance systems

Planned outcome (1)

Task 5.1: Performance references and test methods for HP+ST

- **Market survey on available data about combined systems**
- **Elaboration of a system overview of combined systems**
- **Survey on available testing standards**
- **View and comparison of the existing testing standards**

- **Classification of different systems**
- **Development of quality enquiries on combined systems based on the previous research results**



D5.1: Technical report on combined ST+HP systems with system overview and quality requirements

WP 5: New areas for quality assurance systems

Status and outlook Task 5.1

- A questionnaire for the unified system description has been developed and distributed to the system manufacturers.
- After collecting and analysing the feedback, the work on the system classification will start. First concepts are expected until the end of the year.

WP 5: New areas for quality assurance systems

Status and outlook Task 5.1

- The collection of relevant standards and other normative documents has started. The documents will be analysed and used as a starting point for the development of test method proposals. A list of all documents will be available on the project web page until the end of the year.
- A workshop on system classification and test methods will be organised early next year

WP 5: New areas for quality assurance systems

Planned outcome (2)

Task 5.2: Function and yield controlling of large solar thermal systems

- Updating the market survey on available data on F&YC based on previous work by contacting major stakeholders in each participating country
 - Exchange of technological descriptions and technical discussion on various F&YC systems in a workshop
- **Objective redefinition: Strategic FYC planning?**



D5.2: Setting up basic requirements for a FYC Roadmap?

WP 5: New areas for quality assurance systems

Status and outlook Task 5.2

- Currently available function and yield control concepts have been collected and reviewed in a document available on the project web page (restricted area).
- The new VDI 2169 guideline is available as a draft version (Gründruck). An internal discussion (workshop) between project partners will be initiated.

WP 5: New areas for quality assurance systems

Status and outlook Task 5.2

- was concluded in the group, that the final goal of this task – harmonized technical approach on F&YC – cannot be reached within the project, also due to the fact that only one product is currently commercially available. A new task objective is currently being defined in an ongoing discussion. One possible objective would be to set the basis for the strategic roadmap for the development and implementation of F&YC.

WP 5: New areas for quality assurance systems

Planned outcome (3)

Task 5.3: Quality requirements for solar cooling systems

- **Definition of requirements for durability and performance evaluation for solar cooling systems**



D5.3: Technical report on the requirements for durability and performance testing for solar cooling systems

WP 5: New areas for quality assurance systems

Status and outlook Task 5.3

- A standardised questionnaire has been developed and distributed to collect the data on running solar cooling systems in participating countries.
- The collected data including qualitative assessment of the installations in terms of performance and quality will be analysed until the end of the year.

WP 5: New areas for quality assurance systems

Status and outlook Task 5.3

- The collection of relevant standards and other normative documents has started. The documents will be analysed and used as a starting point for the development of test method proposals
- Early next year, a definition of best practice and lessons learned will be published on the project web page (restricted area)

WP 5: New areas for quality assurance systems

Need for involvement and input from

- SC WG
- Industry Steering Group
- Steering Committee STTP / RHC-Platform

- Meeting proposed for January 2011
(webinar format)

Update on status of the Work Packages

WP6&7: Communication and Dissemination

WP 6&7: Communication and Dissemination

T6.1 Distr. dissemination of project results


- Prepare initial info-release for 2011
- Inform on CE marking mandate & planned revisions
- Previously: update of national reports from SK II
 - AT , DK, FR, DE, GR, IL, IT, PL, PT, SP, SE


T6.3 Project Website

- New website (ESTIF) & QAIiST intranet (discussion board)

WP 6&7: Communication and Dissemination

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Pedro Dias 0

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WP 1: Consortium management

Forum	Stats	Last Post Info
 Project Meetings	0 Topics 0 Replies	👤 -- In: ---- By: ----


WP 2: Solar thermal collectors

Forum	Stats	Last Post Info
 A guideline to the standard EN 12975	0 Topics 0 Replies	👤 -- In: ---- By: ----

WP 3: Solar thermal systems

Forum	Stats	Last Post Info
 European tapping cycles	0 Topics 0 Replies	👤 -- In: ---- By: ----

WP 4: Quality assurance of testing

Forum	Stats	Last Post Info
 Round Robin Collectors	0 Topics 0 Replies	👤 -- In: ---- By: ----

WP 5: New areas for quality assurance systems

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- [Welcome by admin](#) ⚡
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WP 6&7: Communication and Dissemination

T6.5 WP6/ International harmonization

- Broad European participation in IEA SH&C Task 43 on global standards and certification--> Harmonization in practice!
- Agreed with ISO/TC 180 to have the ISO 9806 revision follow closely that of EN 12975

WP 6&7: Communication and Dissemination

T6.5 SK implementation in CEE NMS

- Workshop South-Eastern Europe
 - Bucharest, Romania: 25 November
 - Cooperation with REECO (Renexpo)
 - Approx. 80 participants
- Workshop Northern Europe
 - Spring 2010 (tbc)
 - Cooperation IPIEO

WP 6&7: Communication and Dissemination

- T6.5 SK implementation in CEE NMS
 - Information package for CEE new members states produced
 - Brochure produced
 - Set content of Information package
 - Participation of NMS partners at SKN Meetings (T4.2)
 - Cyprus / Slovakia / Czech Republic
 - Macedonia (fYRO) / Albania



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