QAiST

Quality Assurance in Solar Heating and Cooling Technology

Solar Keymark Network meeting

Graz, Austria

7-8 October 2010

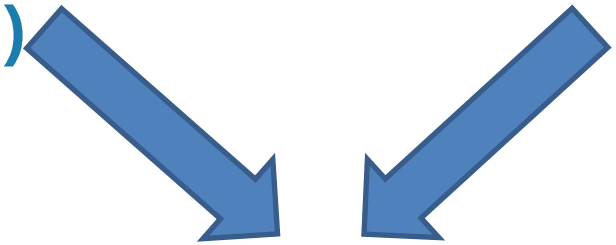
Intelligent Energy Europe

Work in Progress

- Update on the status of the WP
- Tasks on the running period

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”
- **Second step** an EN ISO standard? Draft for public inquiry in 2012
  - Contents are e.g. Task X method on selective coatings integrated, focus on ETC:s

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

- Presented (#12) at SKN meeting
- Fine tuning
  - Inclusion of uncertainty remains
- Extension to unglazed and tracking/concentrating
- Foreseen for June 2011

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)**
- considering the possibility of future certification of Storage tanks and complete systems according to improved standards

WP 3: Solar thermal systems

Improvement of the standards (cont.):

Factory Made Systems / Custom Built Systems

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

WP 3: Solar thermal systems

Definition of the concept of **Hot Water Comfort** for Solar Thermal Systems

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.

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 March 15th and 16th 2010
    - Graz, Austria October 7th and 8th
    - Brussels (?), March 22nd and 23rd

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 Collector
  - 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 QAiST Round Robin the evaluation will be done in parallel by IfEP

WP 4: Quality assurance of testing

- T 4.3 Round Robin System
  - 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***

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

Planed 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

Planed 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

Planed 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 6&7: Communication and Dissemination

T6.1 Distr. dissemination of project results

- Prepare initial info-release for 2010
- 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) & intranet (discussion board): October

WP 6&7: Communication and Dissemination

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 with IPIEO

- Workshop Northern Europe
  - Proposal IPIEO – Spring 2010
  - Implications of current issues in Poland?
- Negotiations for workshop in SEE
  - End November 2010
    - Romania: REECO

WP 6&7: Communication and Dissemination

- T6.5 SK implementation in CEE NMS
  - Information package for CEE new members states produced
    - Flyer draft
    - Leaflet revision
  - Participation at SKN Meetings (T4.2)
  - Set content of Information package

QAiST

Quality Assurance in Solar Heating and Cooling Technology

ESTIF Standard & Certification Working Group meeting

Graz, Austria

7-8 October 2010

Intelligent Energy Europe