Minutes of the 2nd expert meeting of

Task 48 „Quality assurance and support measures for Solar Cooling “

organized by POLIMI on March 26 - 27, 2012 in Milano, Italy

prepared by:

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1 Participants of 2nd expert meeting

36 experts from 9 countries (Germany, Austria, Australia, Italy, Japan, Spain, USA, Canada, France) attended the 2nd expert meeting.
During the meeting, an update on the different activities since the 1st meeting has been achieved , then a reminder on the consolidated workplan of the Task has been presented, followed by workshops to organize the work for all ongoing activities.

The registred participants and attending participants of the 2nd expert meeting are listed in Table A1 & A2 in Appendix A.

Picture of the 2nd Task 48 expert participant

2 General items

2.1 Organizational matters for the 2nd expert meeting in Milano

The 2nd expert meeting in Milano was organized by POLIMI and hosted in the University of Milano. Unanimously, organization of the meeting has been greatly appreciated from the Task 48 experts : thanks a lot to POLIMI (particularly, Antoine Frein).

Three important organizational aspects went out from this meeting:

1) The payment of the Task meeting organization has been only made possible by cash (no possibilities by credit card, bank transfer, etc..) so as to simplify the procedure. **No main issues went out from this process so it has been decided to generalize this rule for next Task 48 meetings**

2) **Video conference** : as written in the Task 48 annex and so as to permit experts from continents out of Europe to participate to the Task meeting, the Milano meeting has been organized with a possibility to participate through video.

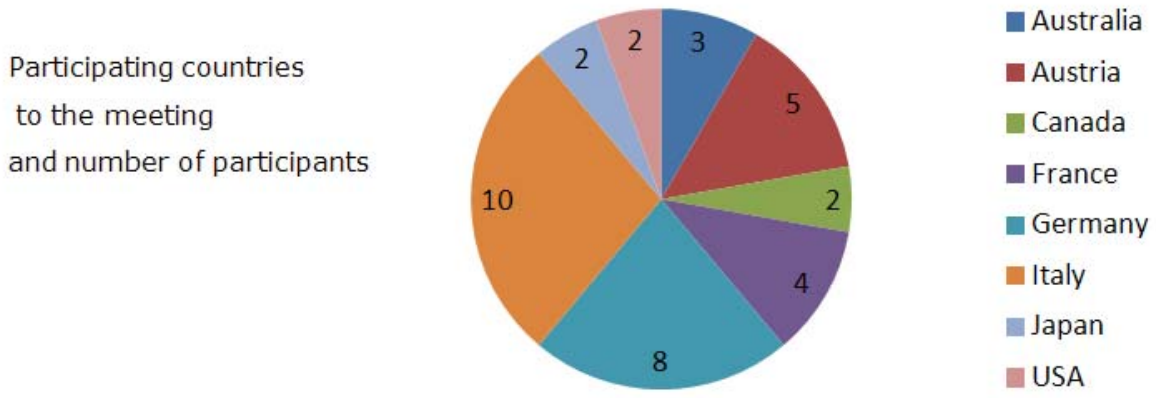
The video system used (hardware or software) was done with professional material using protocol H323. This system was quite fruitful and permit for nearly 10 experts to remotely take part to the meeting from Australia, La Réunion, Canada and USA.
This process permitted to avoid nearly 40 tons of CO2 emissions (avoided plane travels for remote participants).

The systems worked quite well even if some following improvements would be welcome :

- Capacity to access directly the beamer presentations in parallel of the meeting room picture for remote attendees
- Better sound quality inside the meeting room to catch remarks and questions from the attendees
- Adapted video conference room (several video cameras able to make special zooms and having a good picture resolution), good sound quality of the room) for the Task 48 meeting room
- Prepare in advance the schedule of the sessions so as to fit as much as possible with the remote attendees time differences (almost difficult if Australian and Canadian experts are participating!)

Nevertheless, as planned in the Task 48 Annex, the next 3rd Task 48 Expert meeting in Gleisdorf will not include a video conference access (only applied once a year) and the next meeting will in March 2013 will have to include it.

3) Important effort to do to enlarge the participating countries out of Europe



- 38 participants with 8 video attendees (Australia, Réunion, US, Canada)
- Presence of Industry observers from Germany, Japan and US

2.2 Agenda

The agenda of the meeting is attached in the Appendix B of the minutes

2.3 Most important items from the previous Task 48 Kick off meeting (Marseille)

* **27 experts** from 10 countries (Germany, Belgium, Austria, Australia, Singapore, Italy, Spain, USA, Canada, France)

* Minutes available on the Task 48 internal website from 02/03/2012 as well as presentations

* Common workshop with Task 44 (solar & heat pumps) : very interesting and could be leading to together with on Activity B1 for example.

* Press meeting point at ESTEC 2011 (joined with T44) : too early and not so efficient

* Important outputs from the Kick off meeting :
  - Fusion of Activity A2 and B3 on LCA
  - Uncertainties on A5 (Conventional solar collection) and A6 (State of the art on new collector & characterization)
  - Fusion of B5 (Quality procedure document/check lists) and C3 (Selection and standardization of best practice solutions)
  - Suspension of activity B8 (Application for validation of preselected best practice examples)

2.4. General and organizational information on IEA Task 48

The Operating Agent (OA) informed shortly about the goals of the meeting and other organizational matters. Objectives of the 2nd expert meeting:

- To deal with admin issues (national letter
- To update the content of the Annex & Work plan document
- To present the latest Works done by the participants (workshop)
- To start working on the first items (Working groups)
- To make a planning for next steps (Graz meeting in September)

Establishing website : A website is available thanks to the very efficient collaboration of Randy L. Martin. It can be found at www.iea-shc.org/task48

This website is including all the presentations done during the Milano Expert meeting. The concerned folder is to be found in the following path : Task 48/Experts meetings/2nd expert meeting Milano

An internal protected part reserved for the Task Experts and Exco is available for Task 48 participants. It is available at www.iea-shc.org/files
User Access (login + password) are given usable only to regular Task 48 participants (approved by national Exco).

Remark : if Task 48 participants lost their access data, please send an email to daniel.mugnier@tecsol.fr

This specific internal website contains all of the presentations of the meeting as well as all the related documents to Task 48 (general documents, expert meeting presentations, exco meeting documents related to T48, presentations related to T48 in Workshops)

Task 48 flyer has been improved and updated (in English, two pages), containing a short presentation of the Task. It can be found in Appendix D.

The goal is now to make evaluate this flyer : each participant shall provide a feedback on the content of this flyer to: daniel.mugnier@tecsol.fr

Status of participation :

The template of national participation letter has been spread to the Task interested participants since June 2011.

Several National participation letter has been currently signed.

- EURAC (Italy)
- UNIPA (Italy)
- EMCG (USA)
- TECSOL (France)
- CEA INES (France)
- PIMENT (France)
- LASIE (France)
- ISE/ZAE/ILK (draft, Germany)

Some of the participating countries are still on the signing process (participation confirmed but needing some admin delays) :

- Austria (letter of participation pending for AIT, SOLID, AEE Intec, Univ Innsbruck and ASIC, should be signed within the end of 2012) ,
- Italy (letters received for EURAC and Universita di Palermo. POLIMI should provide the letter by July 2012 in San Francisco),

- Singapore (no news and no letter received, Nanyang University still present. Maybe SERIS in 2013),
- Canada (no news and no letter received for Queen's Univ.),
- Australia (letter under progress for CSIRO. Question to include or not SOLEM),
- Germany (generic letter under progress. ILK Dresden, ZAE Bayern and FhG ISE integrated. ZAFHNET pending)
- USA (letter received from DOE to support Khalid Nagidi but other (AZTEC, ERGSOL) still pending)

Nevertheless, the large majority of kick off meeting attendees in Milano promised to make a statement within the next meeting (end of 2012) to collect the remaining National Participation letter (see template in Appendix C). Currently lacking information from: Switzerland

Some countries manifested interest for this Task but investigations are still requested but interested participants (status of observer possible): Israel, Japan, Brazil

=> To do within the next meeting in September in Austria: each Task participant shall inform the national ExCo member about his activities in Task 48 in order to support the submission of the Letter of Participation (LOP) from the ExCo member to the IEA secretary in Paris. The LOP shall also contain/mention/indicate the level of effort of each participant.

A draft version of the LOP can be downloaded from the internal website in the General Documents section..

- Miscellaneous :

* Aiguasol announced in January 2012 its impossibility to keep on participating to the Task 48. For 2012, at the moment, no Spanish participant is present inside Task 48

* University of Liège for Belgium did not keep on participating to Task 48 because of lack of budget : Belgium is no more participating to Task 48

* Observers from Japan, the company Kawasaki attended the Task 48 meeting in Milano. Their participation as experts for Japan could be approved within the end of 2012.

* South Africa, because of lack of official experts having a budget to join Task 48, is not in capacity to participate to Task 48 for the moment

* Fraunhofer Umsicht form Germany suspends its participation at the moment (lack of financing)

* Interests as observer from Vaillant (M. Sick), Fisher Group (M. Müller-Holst), Kawasaki (present to the meeting), Ergsol (joining Milano Meeting through video, Wolfgang Weiss), AZTEC Solar (joining Milano Meeting through video, Don Rodes)

2.5. Task 48 Communication & activities from last Marseille meeting

* First IEA SHC Task 48 Training Seminar - AHR Fair – Chicago – 23/01/12
Lucio Mesquita (Thermosol)

200 slides – ½ day

27 Participants

- ⇨ Course pdf available in the Internal and Public Task 48 website

* Solar Cooling Presentation at CMPP (Centre Marocain des Productions Propres) Conference- November 15, 2011 - Morocco (Casablanca)

A presentation of Task 48 and of latest solar cooling developments has been done during the last conference from CMPP on Eco-villes in Casablanca (Morocco). The presentation on solar cooling, given by Khalid Nagidi from Energy Management Consulting Group, took place on 15 November 2011. The audience was approximately 75 attendees and it was a mix between architects, developers, trade associations, educators, manufacturers, consulting firms, and government representatives

- ⇨ Course pdf available in the Internal and Public Task 48 website

* 1st Saudi Arabia Renewable Energy Conference and Exhibition - February 19-20, 2012 - Dahran, Saudi Arabia

The Kingdom of Saudi Arabia has announced plans to pursue Renewable Energy in an effort to reduce its dependence on fossil fuels and to contribute to a clean environment.
To contribute to these efforts, the Center of Research Excellence in Renewable Energy (CoRE-RE) at King Fahd University of Petroleum & Minerals organised the 1st International Saudi Arabian Renewable Energy Conference & Exhibition. (SAREC&E). SAREC&E has covered a wide range of topics related to Renewable Energy research, technology development and technology transfer by international experts.

Among others, solar cooling was one of the “hot topics” and IEA SHC Task 48 was presented as well as the Solar cooling state of the art and challenges in a presentation made by the Task 48 OA, Daniel Mugnier.
Website : http://www1.kfupm.edu.sa/sarece/

43 slides – available in the Website in the « Meeting/Events » section

200 attendees – large interest – competition with Pvcooling - Important potential for medium to large projects

- ⇨ Presentation pdf available in the Internal and Public Task 48 website

* Article on Solar cooling & Task 48 (U. Jakob/D. Mugnier)

International Airport Review & International Sustainable Energy Review
Issue 1 - 2012
Website : http://www.internationalsustainableenergy.com/magazines/

* Solar cooling at the next SHC Conference, San Francisco (American Intersolar fair)
Dates : 09-10-11/07/2012
Website : http://www.shc2012.org/cms/

Very good feedback on the abstract submission on Solar cooling related topics : Task 48 experts has been selected in a large extend to present papers orally and through Posters.

Balance of the submission :

- 229 submitted abstracts
- 221 abstracts selected for posters and oral presentations
- 40 abstracts on Solar cooling (not exact number but very close) selected for oral/posters
- 104 oral presentations
- 21 oral presentations on solar cooling i.e 20% of the total oral presentations at the conference

Particular elected presentations for some members of Task 48 group : POLIMI, AIT (twice), FhG Umsicht, CEA INES, Uni Queen's, ZAE Bayern, UNIPA, SOLID, Industrial Solar and TECSOL

* Solar cooling at the next Eurosun Conference - Rijeka (Croatia)
Dates : 18-20/09/2012
Website : http://www.eurosun2012.org/
A solar cooling session will be organized with nearly 30 selected papers (14 posters and 16 oral presentations)
Task 48 experts will be present through 7 presentations (only oral ones), representing 50% of the oral presentations of this session.

2.6. Operating Agent and Subtask Leaders

Subtask A : Quality procedure on component
Prof. Mario Motta
Politecnico di Milano
Dep. Energy - Via Lambruschini 4
Milano 20156, Italy

Remark : Prof. Mario Motta informed participants in Milano he would **progressively delegate the responsibility of the Subtask A management to his colleague Marco Calderoni**. This information has been welcomed without problem because Marco Calderoni is already considered as an active actor of Task 48 , perfectly able to carry the Subtask leadership management.

Subtask B : Quality procedure on system level
Dr. Alexander Morgenstern
Fraunhofer ISE
Heidenhofstraße 2
Freiburg 79110, Germany

Subtask C : Market support measures
Dr. Stephen White
CSIRO
PO Box 330
Newcastle, NSW 2300, Australia

Subtask D : Dissemination and policy advice
Dr. Uli Jakob
Green Chiller Association
Verband für Sorptionskälte e.V.
Stendaler Str. 4
10559 Berlin, Germany

Remark : M. Jakob has been confirmed to be Subtask D leader by German Exco in June 2012.

2.6. Next meetings

- **Meeting 3: Gleisdorf, 10&11 September 2012**, organized by OA and a Task 48 participant, AEE Intec, this choice to be able to attend to Gleisdorf Solar conference as well as organize a joint internal workshop with Task 45.

This joint workshop between the 2 new Tasks on large applications: Task 45 and Task 48 has been decided among OA's of the Tasks so as to enhance the synergies and common transversal topics of the Tasks. It will be half a day duration and will mix presentations from the different Tasks

- Meeting 4: *Place still to be decided*, March 2013, organized by OA and another Task 48 participant.

Some possible destinations have been proposed: Australia, Canada. No decision has been taken and the issue will be fixed in September during the 3rd meeting.

This next meeting, as agreed in the Task Annex will be organized so that Participants from countries out of Europe will be able to join the meeting by teleconference (all the sessions will be filmed and available through Internet and a Professional way)

2.6. Latest developments & results

In the beginning of the meeting, a full session has been dedicated to the presentation of a selection of latest developments and results among Task 48 experts. Presentations are available in the Internal meeting section website.

- New performance requirements on conventional climatisation systems 'EcoDesign', Jochen Döll, ISE
- Review on calculation tools, Amandine Le Denn, TECSOL
- Review of relevant international standards, rating & incentive systems pertaining to United States, Khalid Nagidi, EMCG
- Latest developments Australian Solar Cooling Standard, Jeremy Osborne, SOLEM
- Energy box development & latest monitoring results ,Roberto Fedrizzi, EURAC
- Roadmap and Energybase monitoring results , Anita Preisler, AIT

3. Subtask A: Quality procedure on component

Concentrates on developing tools and deliverables permitting to show the level of quality of the most critical components of the solar cooling and heating system (i.e., chiller, the heat rejection device, the pumps and the solar collectors)

A1: Chiller characterization
A2: Life cycle analysis at component level
A3: Heat rejection
A4: Pumps efficiency and adaptability
A5: Conventional solar collection (suspended)
A6: State of the art on new collector & characterization

A1. Chiller characterization

Workgroup chaired by Marcello Aprile
Participating entities: ZAE, UNIPA, SOLEM, POLIMI, INES, (Kawasaki)

Status of the work already done:

- Annex 34: work on adsorption chiller test methods, work on seasonal performance calculation

- INES/ZAE Provide data of lab measurements done in the past years
- Kawasaki: Data sheet of chillers (300kW+) tested according to "JIS"

Deviations to the planning and issues:

- No contribution of testing Adsorption chillers
- UNIPA (the only one at the moment): available for testing water cooled/indirect fired absorption water-ammonia chiller
- Some opportunity for test lab in Australia (CSIRO/SOLEM)
- Focus on double/triple effect instead of adsorption?
- Possible need to define test conditions for air coolled chillers

Next steps and comments:

- List of market available chillers (ZAE, INES, SOLEM, Kawasaki), draft by next meeting
- Review of existing standards: ARI (Polimi), JIS (Kawasaki), Indian BEE code (SOLEM), draft by next meeting

Update of activity status in June 2012 :

- List of market available chillers : draft next meeting
- Review of existing standards : draft next meeting

Activity leadership: POLIMI

A2: Life cycle analysis at component level :

Activity leadership : This activity is fusionned with B3 and UNIPA is leader of this new activity

A3: Heat rejection :

Workgroup chaired by Roberto Fedrizzi (EURAC)

- Participating entities: EMCG, Zafh-net, ZAE, ASIC, SOLID, AIT, TECSOL, ISE, UNIPA
- Structure and Status of the work already done:
  - All provide info on market available devices and monitoring data, good/bad practices
  - ECMG, SOLID, TECSOL → standards for noise, legionella…

- Status of the work already done: start
- Deviation to the planning and issues: none
- Next steps and comments:

- Templates for data acquisition:
  market available products (+standards),
  practical experience
- Deadline end of june, crosschecked end of July by all

Update of activity status in June 2012 :

- Template for report on heat rejection devices available on the market : 31/07/2012, crosscheck by all and final template by next meeting
- Template for report on installed heat rejection devices monitoring data : 31/07/2012, crosscheck by all and final template by next meeting

Activity leadership : EURAC

A4: Pumps efficiency and adaptability:

Leaded by Martin Helm (ZAE)

- Contributions: AIT (Anita Preisler) inputs from SolarCoolOpt
- Objective: Best practice, hydraulic loop design criteria and experiences, control strategies of pumps
- Presented the structure of the Draft Report: introduction, theoretical analysis, practical section

Update of activity status in June 2012 :

- Confirm participation list 30/06/2012
- Check synergies with TASK45 A3 and TASK48 A3 30/06/2012
- Contact WILO and Grundfos about future developments 30/06/2012
- Assessment of existing hydraulic design criteria 31/10/2012
- Sensitivity analysis concerning pumps efficiency and costs in SHC Systems 31/10/2012
- DRAFT: Structure of the Technical report of A4 31/10/2012

Activity leadership : ZAE

A5: Conventional solar collection :

Update of activity status in June 2012 :
Decision to suppress this activity because of a lack of participation

Activity Leadership : Decision to suspend this activity

A6: State of the art on new collector & characterization :

Definition of the contributors from Task 49

- New Leader: Marco Calderoni, POLIMI
- support from Christian Zahler (Industrial solar)

Specific objectives T49:

- Improving solar process heat collectors and loop components
- Providing a basis for the comparison of collectors with respect to technical and economical conditions
- *Giving comprehensive recommendations for standardized testing procedures*

Next steps: Produce a plan for the "cooperation" with T49

Update of activity status in June 2012 :
Link between T49 and T48 update of activities within Task 49 at next meeting in September

Activity leadership : POLIMI

Deliverables :

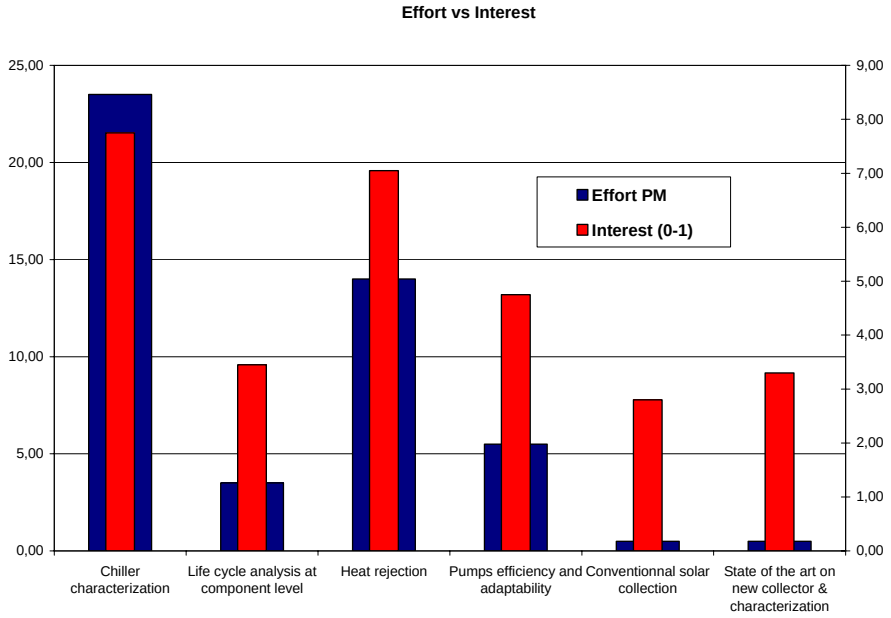
- D-A1: Technical report on the characterization method(s) for chillers include a database of characterization values from existing and tested chillers
- D-A2: Data base of life cycle inventories for components for LCA method tool (see D-B2)
- D-A3: Technical report on heat rejection: including market available products, costs, efficiency criteria ranking and performance characterization.
- D-A4: Technical report on best practices for pumping systems: including both efficiency and adaptability in solar cooling systems
- D-A5: Report on best practices on solar collection components for quality, reliability and cost effectiveness
- D-A6: Database of commercial products database for concentrating solar collectors: build up and periodic update (1 per year) including certification process status

Topics of discussions pending until next Meeting in Austria :

- Review the WPs items and reshape against: new interest, available efforts (projects), budget

- Complete the matrix: is there any chance that all the presents send me by this evening the effort/budget/ineterest?
- Work out an updated Gantt with interconnections with other Subtasks
- A5: how will the collaboration with T45 be implemented?
- A6: Still interest on certification for MTC

Table of interests in March 2012 for Subtask A :



4. Subtask B: Quality procedure on system

Presentation of the Subtask made by Alexander Morgenstern on Day1 and discussion on the results of the workshops and follow up of the subtask on Day2.

Objective : Development of tools and deliverables to show the level of quality of solar cooling and heating systems

- First step: development of a procedure to extend the quality characteristics from component level to system level
- Second step: extension of the procedure from single stationary states to allow performance prediction for whole year operation
  → close link to results of subtask A

B1: System/Subsystem characterization & field performance assessment :

Next steps

- Decide methodologies for rating in labs and in-situ
- Circulate a document asking who is working on/supporting which methodology
- Performance figures to be shown/used in C4 have to be decided from the pool of figures out of the Task 48

Update of activity status in June 2012 :

- Difficulty to collaborate on laboratory testing.
- Very different opinions on the methods to be employed for rating.
- Idea is to circulate a document among the institutions performing tests:
  1. To discuss which is the purpose of the tests
  2. To understand what methodology they "promote" and why

- Monitoring : already some data but need to understand what to do with that: monitoring procedures for large (and small) systems, meant to certificate their performance?

Need to select a couple of performance figures maximum (out of the pool of T38) to rate the systems.

Activity leadership : EURAC leader with support from ISE and INES

B2: Good practice for DEC design and installation :

Updated work plan

- Definition of "good/best practice" DEC systems
- Maintenance, energy saving, customer satisfaction, long term reliability, …
- Continuation of Task 38 survey on lessons learnt of complete project phase (pre-design, …, operation and later dismantling)
- Collection of worldwide new developments
- Recommendations on sensor types and sensor positions
- Special focus on sunny and humid climates
- Survey on quality labels of subsystems of SDEC systems (test procedures for wheels, …)

Until next meeting

- Draft definition what is meant with "good practice"
- Updated list of solar DEC-systems worldwide
- First draft of report

Responsible core team: Tim Selke, Marcello Aprile, Antoine Dalibard
Partners: AIT, CSIRO, UIT de La Rochelle, POLIMI, UNIPA, zafhnet, ISE

Update of activity status in June 2012 :

- Setup of first draft what is meant 'GOOD Practice' coordinated with the B2 team (Tim, Marcello, Antoine) to be done till July 31st 2012
- Setup first draft of B2 report (Tim, Marcello, Antoine) to be done till July 31st 2012
- Create an updated list with international wide SDEC system (Tim, Marcello, Antoine) to be done till July 31st 2012

Activity leadership : AIT

B3: Life cycle analysis at system level :

Status

- Set up of work programme
- Start on output of Task38 – incorporate and update the methods
- Proposal to merge activities of A2 with B3 and include in B3

Next steps and comments:

- Agreement on method
  - faster and more flexible assessment tool compared to the Task 38
  - Avoid detailed TRNSYS simulations
- Cooperation with C2 → primary energy/electricity consumption and emissions will be assessed
- Improve the Life Cycle Inventory LCI component data base : Initiate contact with manufacturers

Partners: UNIPA, ISE, AIT, UNI Catania, SOLID, Kawasaki

Update of activity status in June 2012 :

- Agreement on method (faster and more flexible assessment tool compared to the Task 38, avoid detailed TRNSYS simulations) : consolidated draft until June 2012
- Cooperation with C2 : primary energy/electricity consumption and emissions will be assessed (check @ next meeting)
- Improve the Life Cycle Inventory LCI component data base : Initiate contact with manufacturers (June 2012)

Activity leadership : UNIPA

B4: Simplified design tool used as a reference calculation tool :

Work plan adapted

Until next meeting

- Set up specification for the tool (objectives, input, output, method/language, …)
- Update list of existing tools
- See how to integrate the PolySmart-Load generator into the tool (discussion with ISE)
- Prepare validation cases and testing cases for several sites (geographical)
-

Activ: TECSOL (with funding)

Partners/observers: AIT, POLIMI, ZAE, UNI Catania, Kawasaki, UIBK, ISE

Activity leadership :TECSOL

B5: Quality procedure document/check lists:

Activity shifted and fusionned with C3 due to the lack of involved entities

B6: Self detection on monitoring procedure:

No activities started so far

Activity leadership : ZAFHNET

B7: Quantitative quality and cost competitiveness criteria for systems :
Work plan adapted

1. Collection of economic and performance figures
2. Review of collection

At next meeting in Garching within 2-3 month : elaboration of a proposal for an appropriate evaluation procedure

Until next meeting in Gleisdorf : preparation of test with real cases

Update of activity status in June 2012 :

- Collection of economic and performance figures : draft matrix for collection will be send before april.6th, has to be finished 2-3 weeks before the Garching meeting
- At next meeting in Garching or per Skype on 18th of June

- Elaboration of a proposal for an appropriate evaluation procedure : to be presented in Gleisdorf
- Until next meeting in Gleisdorf: Preparation of test with real cases

Activity leadership : Univ Innsbrück

B8: Application for validation of preselected best practice examples :

Hided until autumn 2012

Main interests by: TECSOL, Eurac

Activity leadership : No leader for the moment

5. Subtask C: Market support measures

Presentation of the Subtask made by Stephen White on Day1 and discussion on the results of thje workshops and follow up of the Subtask activities on Day2..

C1: Review of relevant international standards rating and incentive schemes :

A draft spreadsheet was presented containing labels for all the suggested topics required to describe each incentive program

Discussion about how to improve the spreadsheet – Additional headings to cover
- Administrative forms, timelines or processes required to access funding (or the like)
- Best suited applications (residential/ commercial etc)
- Examples
- Effectiveness of the program

New “Effectiveness” column is particularly important for feeding into SubTask D roadmapping

New participants – Hilbert Focke, Marco Calderoni, Japan, Sth Africa, Spain

Actions
- Adapt spreadsheet to account for feedback, send out for further input
- Finalize spreadsheet (next meeting deliverable) and populate

Update of activity status in June 2012 :

A revised proforma spreadsheet has been sent out, comments received and the spreadsheet finalized. It is now with the country delegates to populate the table before the next expert meeting.

Activity leadership : Leadership carried by CSIRO

C2: Methodology for performance assessment, rating and benchmarking :

Plan was presented and discussed

- Utilizing information from T38 & Megapics
- Ahead of schedule

Scope & methodology for each part

- Rating scale (MaxSCOP & graduations on the scale) (Theoretical evaluation or comparison with existing best practice ?)
- System evaluation (Bin method or measured)

Key Performance Indicator

- With reference to electricity savings or electricity consumption ? [comparison of nega-watts with PV watts]
- With reference to energy savings per m2 of building floor area [comparison with building energy efficiency programs]

Actions

- Review work plan and relationship with B1 and C7
- ISE : discussion paper to be calculated
- Propose key figure for the "Theoretical Maximum" and how to calculate it

Update of activity status in June 2012 :
This activity follows on from Activity B7 where appropriate performance metrics should be decided. As such, thinking on this task is ahead of schedule. Further discussion on the proposed "Theoretical Maximum" and how to calculate it are required. A meeting in Garching (or Skype) is planned for June to progress this.
Discussion papers are to be prepared by ISE and UIBK.

Activity leadership : ISE

C3: Selection and standardisation of best practice solutions :

- Work plan was presented with initial focus on identifying example systems which we would call best practice
- Discussion on key performance indicators for “Engineered System” best practice
    - Check list of numerous best practice indicators (rather than a single overall energy performance indicator)
- Discussion on desirability of singling out specific examples of “best practice” relative to other alternatives (technology and application scenarios)
- Action
    - prepare and circulate check-lists of criteria that should be fulfilled to determine best practice => check-list to be completed by partners
    - Update list of existing installations
    - Select example scenarios/ applications for focus

Update of activity status in June 2012 :
The task is progressing ahead of schedule, with TECSOL, Industrial Solar and SOLID all offering case studies for consideration. CSIRO have also offered a draft best practice guide for a double/triple effect absorption chiller with concentrating solar collectors. A check-list of best practice criteria will also be developed by the partners.

Activity leadership : TECSOL

C4: Measurement and verification procedures :

INES presented the proposed plan of work for the Activity. Key deliverables are to be a monitoring procedure and a draft technical Standard. Specific objectives include

- Define a generic scheme for solar cooling installations
- Define the performance indicator with the associated calculation method
- Include prescription for the sensors requirement
- Define an analysis method of the installation level of performances

Consequently this task is strongly linked to B1, B7 and C2, which also rely on a clear definition of performance.

Update of activity status in June 2012 :
Given the status of the other Activities, it would may be difficult to deliver the planned “Template Measurement and Verification Procedure” with much content for the Gleisdorf Expert Meeting. Performance indicators will need to be selected quickly in collaboration with B1 and C2. AIT have joined the Activity, to contribute on DEC systems.

Activity leadership : CEA INES

C5: Labelling possibilities investigation :

Update of activity status in June 2012 :
This activity is somewhat reliant on the results from other activities and work is not scheduled to start until month 18. Consequently, no work-plan has yet been developed.

Activity leadership : Green Chiller

C6: Collaboration with T45 for contracting models :

- Work program was presented

SOLID presented the C6 work-plan which includes

- Provide a general description of ESCO business models and case studies
- Develop an energy savings calculator (to be adapted from solar heating to also include cooling)
- Publish an EPC energy performance contract and case study of a real solar cooling ESCO project

- Participation is thin
  - Polimi to review work from industry partners
  - ZAPHNet to be contacted
- Action
  - Publishing of an existing solar cooling ESCO contract example

Update of activity status in June 2012 :
This activity is progressing ahead of schedule in collaboration with SHC Task 45.

Activity leadership : SOLID

C7: Certification process definition for small systems :

- Work plan presented
  - On track. No immediate deliverables

- Discussion on alternative methods
    - No basis for excluding any method at this stage
    - No conclusion on sharing of data/ methodologies between methods
    - Decision to keep B1 and C7 operating in parallel

This activity has strong links to B1. It was decided to keep both activities operating. More discussion is required on the intent of these Activities to enable characterization methods to be appropriately tailored.

Update of activity status in June 2012 :
The activity is on track with no immediate deadlines. Activity on the CTSS method in Australia is progressing. Further discussion and collaboration with AIT on the Bin method is required.

Activity leadership : **CSIRO**

6. Subtask D: Market support measures

D1: Web site :

Minutes:TECSOL has presented shortly the current status of the website (task news, presentations, flyers, press release, etc.). Especially the cooperation with Randy Martin (consultant of IEA) is working well.

Update of activity status in June 2012 :
TECSOL and Green Chiller will prepare further news for the website of the ongoing Task 48 work/results. No further actions are required at present.

Activity leadership : TECSOL

D2: Best Practices brochure :

Minutes: Green Chiller presented the first draft of the proposed work-plan with the following objectives:
- Collect best practice examples through several fundamental criteria's: reliability, efficiency/performance, cost competitiveness
- Evaluate possible examples of best practice systems for the brochure
- Select best practice examples for the brochure

- Prepare best practice brochure of max 30 pages in pdf format, later translation into national languages possible

Update of activity status in June 2012 :
This activity follows on from Activity C3 and is not scheduled to start until month 12. Contributions are offered so far by SOLID (2-3 systems, medium-large scale), Industrial Solar (1-2 systems, large scale) and Green Chiller (several systems, small-medium scale).

Activity leadership : Green Chiller

D3: Simplified short brochure :
Minutes: Green Chiller reports that SOLID, Moritz Schubert are not able to carry the activity. Therefore, no WP-leader was present.

Update of activity status in June 2012 :
A new WP-leader should be appointed! No work-plan has yet been developed for this activity, but the work is not scheduled to start until month 24.

Activity leadership : No leader at the moment

D4: Guidelines for Roadmaps on Solar cooling :

Minutes: Green Chiller presented the proposed plan of work for the Activity. Specific objectives include
- Review on existing solar cooling roadmaps
- Elaboration of guidelines for solar cooling roadmaps

Update of activity status in June 2012 :
Contributions are offered by AIT (Austrian Roadmap) and Green Chiller (German Roadmap under preparation) so far.

Activity leadership : Anita Preisler, AiT (newly appointed during the meeting)

D5: Updated specific training seminars adapted to the Quality procedure :

Minutes: POLIMI presented the idea to prepare three different contents for engineers, installers and decision makers/building owners. The proposed training material should be for a one-day workshop. TECSOL offered to send around his training material.

Update of activity status in June 2012 :

This activity is progressing very well. Marco and Aris Aidonis have prepared the first table of contents of three different training courses for engineers, installers and decision makers/building owners. TECSOL, CISRO, AEE/UIBK (e.g. Solair, SolarCoolingOpt) EURAC and Green Chiller offer contributions of further training material developments so far.

Activity leadership : POLIMI

D6: Outreach report :

Minutes: Green Chiller presented the D6 work-plan, which includes

- Preparation of concept for costumer and policy maker workshops
- Organisation and implementation of costumer and policy maker workshops
- Concept development and schedule of national industry workshops related to expert meetings
- Organisation and implementation of national industry workshops
- Development of concept for e-newsletter for the industry
- Semi-annual preparation of the e-newsletter
- Concept developments for further policy actions e.g. press releases, articles related to the Task activity, etc.

Update of activity status in June 2012 :
The activity is on track.

Activity leadership : Green Chiller

7. Conclusions of the Milano meeting :

- Several first working groups and actions are launched. All running activities have activity leaders. Subtask leaders confident in the management (only Activities A5/A6/B8 provisory suspended)
- First milestones and deadlines for July 2012. No significant deviation with the planning
- Adaptation of the Work plan with aggregations of activities : no cancellations but together activities in working groups
  - A2/B3 : Life Cycle analysis on component/system
  - C1/C6 : Review relevant international standards rating & incentive schemes / Collaboration with T45 for contracting models
  - B7/C2 : Quantitative quality and cost competitiveness criteria for systems / Methodology for performance assessment, rating and benchmarking
  - B1/C7/C4 : System/Subsystem characterization & field performance assessment / Certification process definition for small systems / Measurement and verification procedures

APPENDIX A : Participant list with signatures

Table A1 : Participant list with contact details registered for the meeting

	First name	Last name	Organisation	Address	Town	Country	Email address
	Participant						
1	Tim	Selke	AIT	Giefinggasse 2	VIENNA	AUSTRIA	Tim.Selke@ait.ac.at>
2	Anita	Preisler	AIT	Giefinggasse 2	VIENNA	AUSTRIA	Anita.Preisler@ait.ac.at
3	Hilbert	Focke	ASIC	RoseggerstraÃŸe 12	WELS	AUSTRIA	focke.hilbert@asic.at
4	Khalid	Nagidi	Energy Management Consulting Group	844 Oakfield Ave, ste.101	WANTAGH	USA	khalid.nagidi@energymcg.com
5	Roberto	Fedrizzi	EURAC	Viale Druso, 1	BOLZANO	ITALY	roberto.fedrizzi@eurac.edu
6	Simona	Culotta	UNIPA	Viale delle science bld 9	PALERMO	ITALY	simona.culotta@dream.unipa.it
7	Christian	Zahler	Industrila Solar GmbH	Emmy-Noether-Str.2	FREIBURG	GERMANY	christian.zahler@industrial-solar.de
8	François	Boudehenn	INES	50 Avenue du Lac Léman	BOURGET	FRANCE	francois.boudehenn@cea.fr
9	Alexander	Morgenstern	ISE	Heidenhofstr. 2	FREIBURG	GERMANY	Alexander.Morgenstern@ise.fraunhofer.de
10	Matthies	Schicktanz	ISE	Heidenhofstr. 2	FREIBURG	GERMANY	matthias.schicktanz@ise.fraunhofer.de
11	Kazuyuki	Makita	Kawasaki Thermal Engineering	1000, Aoji-cho	KUSATU	JAPAN	makita_k-krk@corp.khi.co.jp
12	Yosuke	Goto	Kawasaki Thermal Engineering	1000, Aoji-cho	KUSATU	JAPAN	gotoh_y-kte@corp.khi.co.jp
13	Mario	Motta	POLIMI	Via Lambruschini 4	MILAN	ITALY	mario.motta@polimi.it
14	Marcello	Aprile	POLIMI	Via Lambruschini 4	MILAN	ITALY	marcello.aprile@polimi.it
15	Marco	Calderoni	POLIMI	Via Lambruschini 4	MILAN	ITALY	marco.calderoni@polimi.it
16	Antoine	Frein	POLIMI	Via Lambruschini 4	MILAN	ITALY	antoine.frein@polimi.it
17	Schubert	Moritz	SOLID	Puchstr. 85	GRAZ	AUSTRIA	m.schubert@solid.at
18	Amandine	LeDenn	TECSOL	105 avenue Alfred Kastler	PERPIGNAN	FRANCE	amandine.le-denn@tecsol.fr
19	Daniel	Mugnier	TECSOL	105 avenue Alfred Kastler	PERPIGNAN	FRANCE	daniel.mugnier@tecsol.fr
20	Daniel	Neyer	UIBK	Technikerstr. 13	INNSBRUCK	AUSTRIA	daniel.neyer@uibk.ac.at
21	Marco	Beccali	UNIPA	Viale delle science bld 9	PALERMO	ITALY	marco.beccali@unipa.it
22	Pietro	Finicchiaro	UNIPA	viale delle science bld 9	PALERMO	ITALY	finocchiaro@dream.unipa.it
23	Gianpiero	Evola	UNICT	Viale A. Doria 6	CATANIA	ITALY	gevola@unict.it
24	Luigi	Marletta	UNICT	Viale A. Doria 6	CATANIA	ITALY	luigi.marletta@diim.unict.it
25	Manuel	Riepl	ZAE	Walther Meissner Str 84	GARCHING	GERMANY	riepl@muc.zae-bayern.de
26	Martin	Helm	ZAE	Walther Meissner Str 84	GARCHING	GERMANY	helm@muc.zae-bayern.de
27	Antoine	Dalibard	ZAFHNET	Schellingstr. 24	STUGGART	GERMANY	antoine.dalibard@hft-stuttgart.de
28	Jochen	Doell	ISE	Heidenhofstr. 2	FREIBURG	GERMANY	jochen.doell@ise.fraunhofer.de
	Visio conference						
1	Don	Rodes	AZTEC SOLAR	11370 Trade Center Drive	RANCHO CORDOVA	USA	don@aztecsolar.com
2	Stephen	White	CSIRO	PO Box 330	NEWCASTLE	AUSTRALIA	stephen.D.White@csiro.au
3	Jeremy	Osborne	SOLEM	PO Box 188	BALGOWLAH	AUSTRALIA	jeremy.osborne@solem-consulting.com
4	Blaise	Letexier	PIMENT	40, avenue de Soweto	SAINT-PIERRERéunion	FRANCE	blaise.letexier@univ-reunion.fr
5	Uli	Jakob	GREEN CHILLER	Stendaler Strasse 4,	BERLIN	GERMANY	uli.jakob@greenchiller.de
6	Steeve	Harrison	QUEEN's UNIVERSITY	Rm. 406b, McLaughlin Hall	KINGSTON	CANADA	harrison@me.queensu.ca
7	Lisa	Crofoot	QUEEN's UNIVERSITY	Rm. 406b, McLaughlin Hall	KINGSTON	CANADA	lcrofoot@me.queensu.ca
8	Dan	Rowe	CSIRO	PO Box 330	NEWCASTLE	AUSTRALIA	dan.rowe@csiro.au

Table A2 : Participant list with signatures

Participation List : 2nd Expert meeting IEA SHC Task 48 – Milano – 26-27/03/2012

	First name	Last name	Organisation	Email address
1	Tim	Selke	AIT	Tim.Selke@ait.ac.at>
2	Anita	Preisler	AIT	Anita.Preisler@ait.ac.at
3	Hilbert	Focke	ASIC	focke.hilbert@asic.at
4	Khalid	Nagidi	EMCC	khalid.nagidi@energymcg.com
5	Roberto	Fedrizzi	EURAC	roberto.fedrizzi@eurac.edu
6	Mathias	Safarik	ILK Dresden	mathias.safarik@ilkdresden.de
7	Christian	Zahler	Industrial Solar GmbH	christian.zahler@industrial-solar.de
8	François	Boudehenn	INES	francois.boudehenn@cea.fr
9	Alexander	Morgenstern	ISE	Alexander.Morgenstern@ise.fraunhofer.de
10	Matthies	Schicktanz	ISE	matthias.schicktanz@ise.fraunhofer.de
11	Kazuyuki	Makita	Kawasaki	makita_k-krk@corp.khi.co.jp
12	Yosuke	Goto	Kawasaki	gotoh_y-kte@corp.khi.co.jp
13	Mario	Motta	POLIMI	mario.motta@polimi.it
14	Marcello	Aprile	POLIMI	marcello.aprile@polimi.it
15	Marco	Calderoni	POLIMI	marco.calderoni@polimi.it
16	Antoine	Frein	POLIMI	antoine.frein@polimi.it
17	Schubert	Moritz	SOLID	m.schubert@solid.at
18	Amandine	LeDenn	TECSOL	amandine.ledenn@tecsol.fr
19	Daniel	Mugnier	TECSOL	daniel.mugnier@tecsol.fr
20	Daniel	Neyer	UIBK	daniel.neyer@uibk.ac.a:
21	Marco	Beccali	UNIPA	marco.beccali@unipa.it
22	Pietro	Finicchiaro	UNIPA	finocchiaro@dream.unipa.it
23	Gianpiero	Evola	UNICT	gevola@unict.it
24	Luigi	Marletta	UNICT	luigi.marletta@diim.unict.it
25	Manuel	Riepl	ZAE	riepl@muc.zae-bayern.de
26	Martin	Helm	ZAE	helm@muc.zae-bayern.de
27	Antoine	Dalibard	ZAFHNET	antoine.dalibard@hft-stuttgart.de
28	Jochen	Doell	ISE	jochen.doell@ise.fraunhofer.de
29	SIMONA	CULOTTA	UNIPA	SIMONA.CULOTTA@DREAM.UNIPA.IT

APPENDIX B: Program of the 1st Expert meeting

IEA SHC Task 48 2nd meeting

Quality assurance and support measures for Solar Cooling

Conference Room Castigliano - POLITECNICO DI MILANO
Piazza L. da Vinci, 32 - 20133 Milano - ITALY

Meeting Agenda - Final version

March 26, 2012, 9:00 – 17:30 & March 27, 2012, 8:30 – 16:00

Task 48 website : http://www.iea-shc.org/task48/index.html

Participation fee:
The participation fee is 150 € and it will only be possible to pay cash when registering in Milano.
The fee will include lunches and coffee breaks (Monday and Tuesday) and dinner on Monday.

Get Together optional dinner on Sunday 25th :

- Pizzeria "Maruzzella" - Piazza Guglielmo Oberdan, 3 - 20129 Milano - + 39 02 2952 5729

Meeting point: In front of the Pizzeria at 19h30 - Google Maps : http://g.co/maps/hsrtk

Agenda for Monday March 26th, 2012 (9:00pm-17:30pm)

Plenary

9.00-9.15	Welcome and Organisational issues	Daniel Mugnier	TECSOL
9.15-10.00	Welcome, Introduction, IEA, Infos, Structure of the meeting, Participation letters	Daniel Mugnier	TECSOL

***1st block :* Subtask Planning & status update**

10.00-10:15	Subtask A : Structures, status, deliverables	Mario Motta	POLIMI
10.15-10:30	Subtask B : Structures, status, deliverables	Alex Morgenstern	FhG ISE
11:30- 10:50	**Coffee Break**		
10.50-11:05	Subtask C : Structures, status, deliverables	Stephen White	CSIRO
11.05-11:20	Subtask D : Structures, status, deliverables	Daniel Mugnier	TECSOL
11.20-12:30	Activity leader panel forum on activity level vision, workplans and scope overlap		Activity leaders

12.30-13:15 Lunch Break at POLITECNICO in a room beside the meeting room

***2nd block :* Latest developments & results session**			
13.15-13:45	New performance requirements on conventional climatisation systems 'EcoDesign'	Jochen Döll	ISE
13.45-14.05	Review on calculation tools	Amandine Le Denn	TECSOL
14.05-14:35	Review of relevant international standards, rating & incentive systems pertaining to United States	Khalid Nagidi	EMCG
14.35-14.55	Latest dvpts Australian Solar Cooling Standard	Jeremy Osborne	SOLEM
14.55-15.15	Energy box dvpt & latest monitoring results	Roberto Fedrizzi	EURAC
15.15-15.35	AT Roadmap and Energybase monitoring results	Anita Preisler/Tim Selke	AIT

15:35- 16 :00 Coffee Break

Working groups : block1			
16:00-16:10	Organization of Group discussions on Work Package level (5-6people max per item)	Daniel Mugnier	TECSOL
16:10-17:30	Meeting in parallel on Work Package level; Suggested topics for working groups are:		

* **C3** : Selection and standardisation of best practice solutions (Activity Leader : A. Le Denn (TECSOL))

* **A2/B3** : Life Cycle analysis on component/system (Activity Leader : Marco Beccali (UNIPA) and Tim Selke (AIT))

* **D6** : Outreach Report (Activity Leader : Uli Jakob, Green Chiller)

End of the working Day 1

Gala Dinner on Monday:

- Restaurant "Osteria del Binari" - Via Tortona, 1, 20144 Milano, Italia - +39 02 8940 9428
  Google Maps : http://g.co/maps/qmm6t

Three meeting points to reach together the restaurant:

- EuroHotel Office Desk at 19:15 (http://g.co/maps/pbsrx)
- Hotel Fenice Office Desk at 19:15 (http://g.co/maps/ntpvs)
- In front of "Osteria del Binari" at 20:00 (http://g.co/maps/qmm6t)

(see Annex for more details)

Agenda for Tuesday March 27th (8:30am-4:00pm)

Working groups : block2

08:30-08:40 Organization of Group discussions on Work Package level (5-6people max per item) Daniel Mugnier TECSOL

08:40-10:00 Meeting in parallel on Work Package level; Suggested topics for working groups are:

* **C1/C6** : Review of relevant international standards rating and incentive schemes / Collaboration with T45 for contracting models (Activity Leader : Stephen White, CSIRO)

* **B2** : Good practice for DEC design and installation (Activity Leader : Tim Selke (AIT))

10:00- 10:20 Coffee Break

Working groups : block3

10:20-11:40 Meeting in parallel on Work Package level; Suggested topics for working groups are:

* **A1** : Chiller characterization (Activity leader : Marcello Aprile (POLIMI))

* **A3** : Heat Rejection (Activity leader : Roberto Fedrizzi (EURAC))

* **B7/C2** : Quantitative quality and cost competitiveness criteria for systems / Methodology for performance assessment, rating and benchmarking (Activity Leader : J. Döell / M. Schiktanz (ISE))

Working groups : block4

11:40-13:00 Meeting in parallel on Work Package level; Suggested topics for working groups are:

* **B1/C7/C4** : System/Subsystem characterization & field performance assessment / Certification process definition for small systems / Measurement and verification procedures (Activity Leaders : François Boudehenn (INES), Roberto Fedrizzi (EURAC) & Stephen White (CSIRO)

* **B4** : Simplified design tool used as a reference calculation tool : design facilitator (Activity leader : Amandine Le Denn, TECSOL)

13:00 -14:00 Lunch Break at POLITECNICO DI MILANO in a room beside the meeting room

14.00 – 16.00 Plenary & overall

14.00-14.20 Subtask A : Report on working group items; planning of next steps; distribution of work; action items Mario Motta POLIMI

14.10-14.40 Subtask B : Report on working group items; planning of next steps; distribution of work; action items Alex Morgenstern FhG ISE

14.40-15.00 Subtask C : Report on working group items; planning of next steps; distribution of work; action items Stephen White CSIRO

15.00-15.20 Subtask D : Report on working group items; planning of next steps; distribution of work; action items Daniel Mugnier TECSOL

15.20-16.00 General items, next meetings,miscellaneous Daniel Mugnier TECSOL

16 :00 End of Task 2nd expert meeting

Agenda for Wednesday March 28th (8:45am-12:30pm)

- **Technical Visit : Idroscalo di Milano**

For those who are interested, a technical visit is organized on Wednesday morning to a recently installed solar cooling system nearby Milano (30 minutes by bus from the meeting place). The plant has been realised in the framework of the FP6 research project "High Combi" and couples solar thermal with a water-water heat pump. It's a complete coupling, since the heat pump uses one of the solar tanks as cold heat source.
A bus has been booked to take us there.

Two meeting points to reach together the heating and cooling plant:

- EuroHotel Office Desk at 08:45
- Hotel Fenice Office Desk at 08:45

Google Maps : (http://g.co/maps/f4kg3)

- **Fiera Rho - Mostraconvegno Expocomfort :**

The exhibition is easily reachable from the hotels via train or metro (about 25 minutes). Free entrance has been collected to visit the exhibition.

Google Maps : (http://g.co/maps/23ab2)

LOGISTIC INFORMATION:

Marco Calderoni's phone number: +39 335 6801623

Hotel suggested:

- EuroHotel (Via Sirtori, 24 - 20129 Milano, Italia - Tel. +39 02 20404010 - www.eurohotelmilano.it - info@eurohotelmilano.it) (http://g.co/maps/pbsrx)

- Hotel Fenice (Corso Buenos Aires 2 – 20124 Milano, Italia - Tel. +39 02 29525541, www.hotelfenice.it - fenice@hotelfenice.it,) (http://g.co/maps/ntpvs)

Meeting Place (http://g.co/maps/u65sw) :
Conference Room Castigliano - POLITECNICO DI MILANO

Piazza L. da Vinci, 32 - 20133 Milano - ITALY

HOW TO REACH PIOLA METRO STATION (Politecnico's closest metro station):

Two main train stations in Milan:

- **Stazione Centrale**, which is only three stops by metro (M2) from "Piola".
- **Stazione Garibaldi**, which is also on the metro line M2. It is five stops from "Piola"

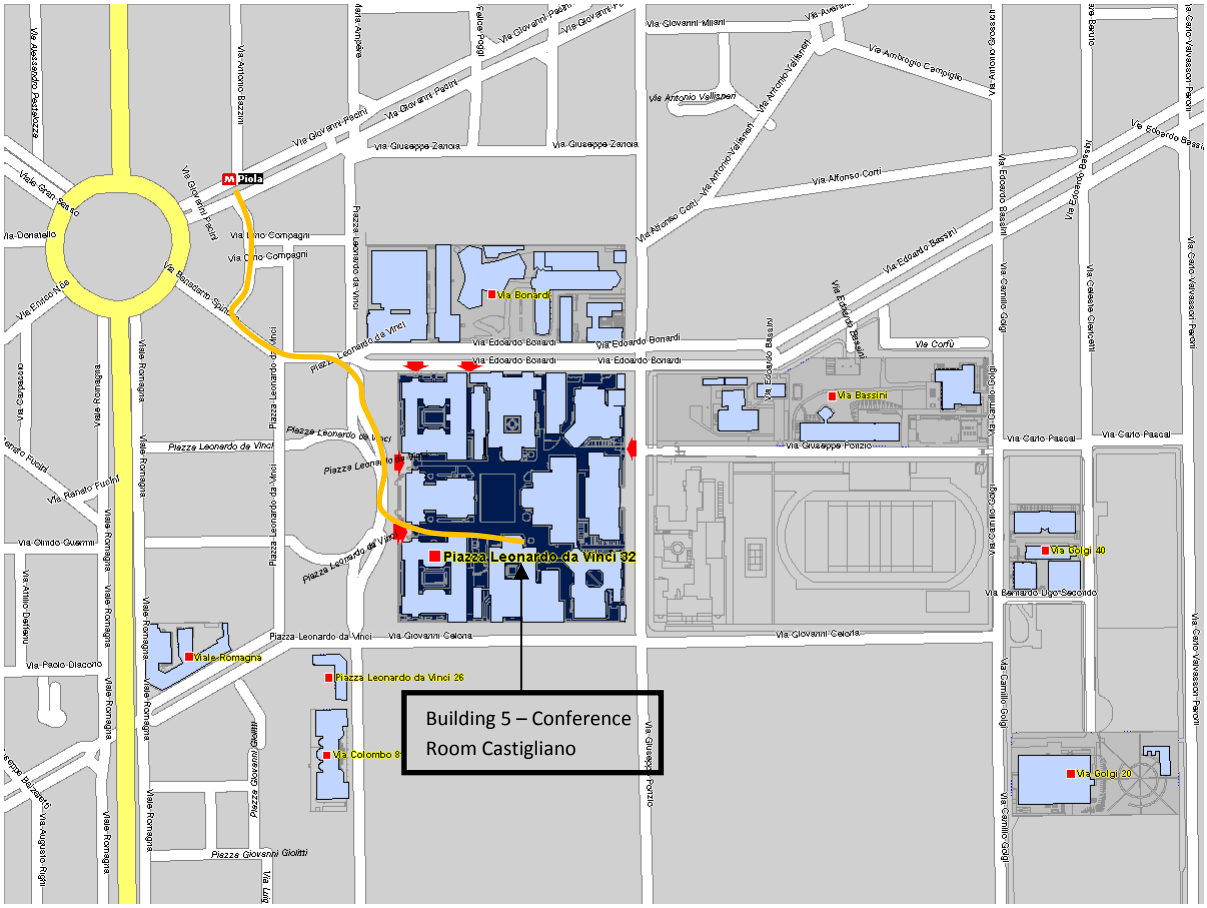
Three airports around Milan:

- **Malpensa** is the biggest airport but it is quiet far from the city center. From the airport to the meeting place it is around 1h30. Trains or private Busses are making the connection between the airport and "Stazione Centrale". Then take the metro M2 until "Piola".
- **Bergamo** is mainly used by Ryanair. From the airport to the meeting place it is around 1h30. Private Busses are making the connection between the airport and "Stazione Centrale". Then take the metro M2 until "Piola".
- **Linate** is very close to city center, it is possible to go there in 20-30 min by taxi or 1h by busses but only few destinations are landing there (see following table and map)

Departure from	**Aeroporto Linate (P)**
Walk to	V.le Forlanini Via Circonvallazione (Segrate) (200m)
Take Line No	73 for 7 stops Get off at Viale Campania Viale Corsica
Walk to	Viale Campania Viale Corsica (100m)
Take Line No	91 (Isonzo - Lotto (circolare sinistra)) for 7 stops Get off Viale Gran Sasso - **Piazzale Piola M2 (A)**

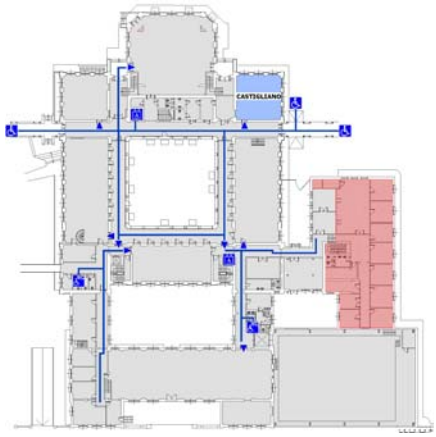
HOW TO REACH MEETING PLACE FROM PIOLA METRO STATION :

- Once you arrived to the metro station “Piola” (metro M2 – green line), you have to walk until Piazza Leonardo da Vinci, 32 (approx. 500m) (see following map)



Map 1: From the metro Station “Piola” (on the line M2) to Politecnico di Milano

- Enter through the second door (the one on the right when you face the Politecnico building) and walk until the building 5. The conference room is called “Castigliano”(see following map).



Map 2 : Building 5 – Conference room Castigliano:

HOW TO TAKE PART TO THE VIDEO CONFERENCE Call :

Preliminary requirement : The video system used (hardware or software) respects protocol H323.

Different steps to join the session:

For the day 26/03/2012 the session name is “Task 48” from 8:00am to 6:00pm.

1/ Call the address IP : **130.186.8.16**

2/ Once connected, you have to enter in the session **96**, by writing this number on the monitor.

3/ Once entered, write the PIN code **2710**

For the day 27/03/2012 the session name is “Task 48bis” from 8:00am to 6:00pm.

1/ Call the address IP : **130.186.8.16**

2/ Once connected, you have to enter in the session **74**, by writing this number on the monitor.

3/ Once entered, write the PIN code **2710**

APPENDIX C: Template for National Participation letter

SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

NATIONAL PARTICIPATION LETTER

Date 11/07 2011

To Operating Agent
Daniel MUGNIER
TECSOL SA.
105 av Alfred Kastler - BP 90434
66 004 PERPIGNAN Cedex - FRANCE
E-mail : daniel.mugnier@tecsol.fr

National Participation Commitment Letter for

Task 48: *Quality assurance and support measures for Solar Cooling* - of the IEA Solar Heating and Cooling Programme

Task Start Date 1/10 2011 Completion Date 31/03 2015

This letter confirms and acknowledges the commitment of the undersigned Contracting Party, which is a Participant in the abovementioned Task, to:

(1) fulfil the minimum participation requirements specified in Annex Text, Task 48, July 2011, which is a minimum of 0.3 person year per annum
(2) to abide by the Task Research Work Plan prepared by the Participants and approved by the Executive Committee, and
(3) to ensure that their national representatives are funded to attend all Task experts meetings (physically or by visioconference mean at least).

Nominated experts for this Task are:**

Name	**Address/ Area of Expertise**	**Level of Effort: x person month per year**	**Funding Source** *(contingent on funding from the specified source)*	**Dates Funding is Guaranteed**

Other contributions to the Task (facilities, equipment, project, etc.)**
_____

Contracting Party & Country**_____

Signature of ExCo Member**_____ Date**_____

Approved by Operating Agent *(after the letter is returned)* _____

* *To be filled in by Operating Agent before letter is sent to ExCo members*
** *To be filled in by ExCo member*

APPENDIX D: Task 48 flyer -2 pages

SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

IEA SHC TASK 48

Quality assurance and support measures for Solar Cooling

www.iea-shc.org/task48

Solar cooling installation for a wine cellar in South of France
(Source : TECSOL)

Fresnel collector field adapted for solar cooling (Source : Industrial Solar GmbH)

Solar cooling installation using DEC technology and air collectors in Central Europe
(Source : Fraunhofer ISE)

Solar cooling installation for a Tertiary building in Tropical climate
(Source : TECSOL)

CONTEXT : A tremendous increase in the market for air-conditioning can be observed worldwide especially in developing countries. The results of the past IEA SHC Tasks and works on solar cooling (ex : Task 38 Solar Air-Conditioning and Refrigeration) on the one hand showed the great potential of this technology for building air-conditioning, particularly in sunny regions. On the other hand, it has been shown that further work is necessary in order to achieve economically competitive systems and which presents solid long term energy performance and reliability.

OBJECTIVES : The proposed project is intended to find solutions to make the solar thermally driven heating and cooling systems at the same time efficient, reliable and cost competitive. This three major targets should be reached thanks to four levels of activities:

1) Development of tools and procedure to make the characterization of the main components of SAC systems
2) Creation of a practical and unified procedure, adapted to specific best technical configurations.
3) Development of three quality requirements targets : prescriptive and performance based
4) Production of tools to promote Solar Thermally Driven Cooling and Heating systems

SCOPE : The scope of the Task are the technologies for production of cold water or conditioned air by means of solar heat, i.e., the subject which is covered by the Task starts with the solar radiation reaching the collector and ends with the chilled water and/or conditioned air transferred to the application. However, although the distribution system, the building and the interaction of both with the technical equipment are not the main topic of the Task this interaction will be considered where necessary.

STRUCTURE : The project, starting in October 2011 for 3.5 years duration, is divided into 4 subtasks :

Subtask A: Quality procedure on component level
- A1: Chiller characterization
- A2: Life cycle analysis at component level
- A3: Heat rejection
- A4: Pumps efficiency and adaptability
- A5: Conventional solar collection
- A6: State of the art on new collector & characterization

Subtask B: Quality procedure on system level
- B1: System/Subsystem characterization & field performance assessment
- B2: Good practice for DEC design and installation
- B3: Life cycle analysis at system level
- B4: Simplified design tool used as a reference calculation tool : design facilitator
- B5: Quality procedure document/check lists
- B6: Self detection on monitoring procedure
- B7: Quantitative quality and cost competitiveness criteria for systems
- B8: Application for validation of preselected best practice examples

Subtask C: Market support measures
- C1: Review of relevant international standards rating and incentive schemes
- C2: Methodology for performance assessment, rating and benchmarking
- C3: Selection and standardisation of best practice solutions
- C4: Measurement and verification procedures
- C5: Labelling possibilities investigation
- C6: Collaboration with T45 for contracting models
- C7: Certification process definition for small systems

Subtask D: Dissemination and policy advice
- D1: Web site
- D2: Best Practices brochure
- D3: Simplified short brochure
- D4: Guidelines for Roadmaps on Solar cooling
- D5: Updated specific training seminars adapted to the Quality procedure
- D6: Outreach report

SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

SUBTASK LEADERSHIP

Subtask A : Quality procedure on component

Politecnico di Milano
Dep. Energy - Via Lambruschini 4
Milano 20156, Italy

Subtask B : Quality procedure on system level

Fraunhofer ISE
Heidenhofstraße 2
Freiburg 79110, Germany

Subtask C : Market support measures

CSIRO
PO Box 330
Newcastle, NSW 2300, Australia

Subtask D : Dissemination and policy advice

Green Chiller Association
Verband für Sorptionskälte e.V.
Stendaler Str. 4
10559 Berlin, Germany

PARTICIPATING COUNTRIES (status in June 2012)

Australia, Austria, Canada, China, France, Germany, Italy, Singapore and USA
(no claim for completness)

PARTICIPATING MANUFACTURERS AND COMPANIES (status in June 2012)

Industrial Solar GmbH, Invensor, Sortech, SOLEM, SOLID, TECSOL, Thermosol Consulting, Kawasaki.
(no claim for completness)

SOLAR HEATING AND COOLING PROGRAMME

The Solar Heating and Cooling Programme was established in 1977, one of the first programmes of the International Energy Agency.
The Programme's work is unique in that it is accomplished through the Internationl collaborative effort of experts from Member countries and the European Union.

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RELATED SITES

SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

www.iea-shc.org

TASK 48

www.iea-shc.org/task48