Status of TASK 43:
IEA SHC Rating and Certification Procedures – Advanced Solar Thermal Testing and Characterization for Certification of Collectors and Systems

Les Nelson
U.S. Operating Agent

November, 2009
BACKGROUND ON TASK 43
Task Objective

- This international collaboration will research and develop, where needed, new test procedures and characterization methods for addressing the testing of both conventional and advanced solar thermal products. It will leverage the knowledge from existing Tasks/Technical Committees/Certification Groups as a base for the development of work, inviting these groups to participate. By researching testing issues and improved approaches the outputs of this task can help optimize the time and resources companies, laboratories and certification bodies expend on testing and certification; while still assuring consumer protection and providing credible information on solar heating and cooling benefits.
Testing and Certification Challenge

North American Norms

Australian Norms

Chinese Norms

Indian Norms

Keymark Norms

Manufacturers

IEA Test & Certification Research

FSEC

UNSW

arsenal research

Fraunhofer Institut Solare Energiesysteme

Cener

ISFH

SPF
Reducing Barriers

- Europe’s Solar Keymark: common, recognizable symbol that products perform to standards, based on testing and certification.
- Solar Rating and Certification Corporation: provides same assurance, rating required for products to qualify for national tax credits and many state and local incentives in addition to EnergyStar labeling.
- Liaison and dissemination of results of new IEA task on testing and certification to international, regional and national standards bodies provides technical basis and forum for enhancing test and certification procedures in major established and emerging markets.
- Ease barriers to entry by encouraging comparable test assumptions and procedures, especially for new and emerging technologies.
TASK LEADERSHIP AND APPROACH
Co-Operating Agents

- Les Nelson, North America, active in SRCC and Solar Energy Industries Association
- Jan-Erik Nielsen, Europe, Solar Keymark Network Secretary, active with European Solar Thermal Industries Federation
Resources

• Funding
  • Each country bears own costs
  • Meeting organization costs borne by host country
  • Commits at minimum 4 person-months to the task, allocated among the subtasks
  • Can include funding already allocated to a national or international activity
  • Industry contributes products for round-robin testing where they choose to participate

• Leadership
  • Operating agent at .2 FTE per year
  • Subtask leaders for each subtask at .2 FTE per year
Leverage/Coordination

- ISO/TC 180
- CEN/TC 312
- Alanod group
- NEGST
- Task 19 - Solar Air Systems
- Task 23 SolarPACES
- Task 26 - Solar Combisystems
- Task 36 - Solar Resources
- Task 35 - PV / Thermal Solar Systems
- Task 39 - Polymeric Materials for Solar Thermal Applications
Subtasks

• **A**: Collectors (CENER Lead, Enric Mateu Serrat)
• **B**: Systems (ITW Lead, Harald Drueck)
Subtask A: Low-Temperature Collector Activities

Objective: to examine existing testing and certification procedures for low-temperature evacuated tube and flat-plate collectors, air heating collectors, medium- to high-temperature concentrating collectors, to identify weaknesses, inconsistencies in application, and significant gaps.

- **Activity A.1**: Roadmap of collector testing and certification issues
- **Activity A.2** – Low-to-Medium Temperate Collector Test Procedures, Standards and Simulation
- **Activity A.3** – Air Heating Collector Test Procedures, Standards and Simulation
- **Activity A.4** – Concentrator Collector Test Procedures, Standards and Simulation
- **Activity A.5** – Communication and Adoption of Result
Subtask B: Systems

Objective: examine testing procedures for entire systems and identify weaknesses, inconsistencies in application, and significant gaps

• Activity B.1 – Roadmapping of Systems Issues
• Activity B.2 – Component/Material Substitution, Qualification and Safety Testing
• Activity B.3 – Simulation and Modelling
• Activity B.4 – Analysis and Public Dissemination of Benefit Indicator
• Activity B.5 – Communication and Outreach Coordination
ACCOMPLISHMENTS
Accomplishments: Task Experts
Meeting/Roadmap Development in South Africa

- Assignments and schedules for Subtask A and B
- Co-located with ISO/TC180
- Progress on White Papers for Collector Testing Issues
Accomplishments: Concept for Engaging Certification Bodies, Harmonization

GLOBAL CERTIFICATION

Industry representatives
- appointed by major industrial associations from different regions of the world

Certification Board
for the certification scheme has representatives from:
- industrial associations
- certification bodies
- test labs

ISO standards

Certification Scheme
made based on the ISO standard(s) and normal practice for product certification. The Certification Scheme describes in detail "the rules" for certification of the specific product group including requirements. The Certification Scheme is approved by the Board (could be drafted by a smaller group)

Test labs
- approved/recognised by the certification body (accreditation needed)

Certification bodies
- do the certification according to the certification scheme (accreditation needed) (approval by the Board needed?)

Manufacturer
- produce products – and mark them

Certificate / licence
- allowing the manufacturer to mark his products is given by the certification body

Product

User

Mark / Label
Accomplishments: Wiki Collaboration Tool Deployed, in Use
NEXT STEPS/PLANS
## Subtask A Work Plan

<table>
<thead>
<tr>
<th>Subtask A Activities</th>
<th>2009</th>
<th>2010</th>
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<th>2012</th>
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<td>b. Round Robin Tests</td>
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<td>c. Recommendations on Test Standards</td>
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<td><strong>A3: Air Heating Collectors</strong></td>
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<td>a. White Paper on Issues</td>
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## Subtask B Workplan

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<td>Report on End User Experience and Testing</td>
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<td>Report on Test and Characterization and Public</td>
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<td>B5: Communication and Outreach Coordination</td>
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Next Steps

- Web Meeting Early 12/2009 for Input on Subtask A White Paper and Subtask B
- Task Experts Meeting at ITW, Stuttgart
  - February 8 Industry Workshop
  - February 9 and 10 Task Experts Meeting
- North American and Australian Discussions with QAiST on Coordinating Testing
- Follow Up to Engage Certification Bodies
- Expanding Participation

November 2009
Items for the ExCo

- Updated Participation Letters
- Advice/Suggestions: India and China
- Non-IEA Country/Organization Involvement: India, China, Brazil, Chile
- Modification to Workplan Deliverable B1: White Paper Based on Roadmap
- Support for Jan Eric Nielsen
- Additional Country Participation?

June 2009