

**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**

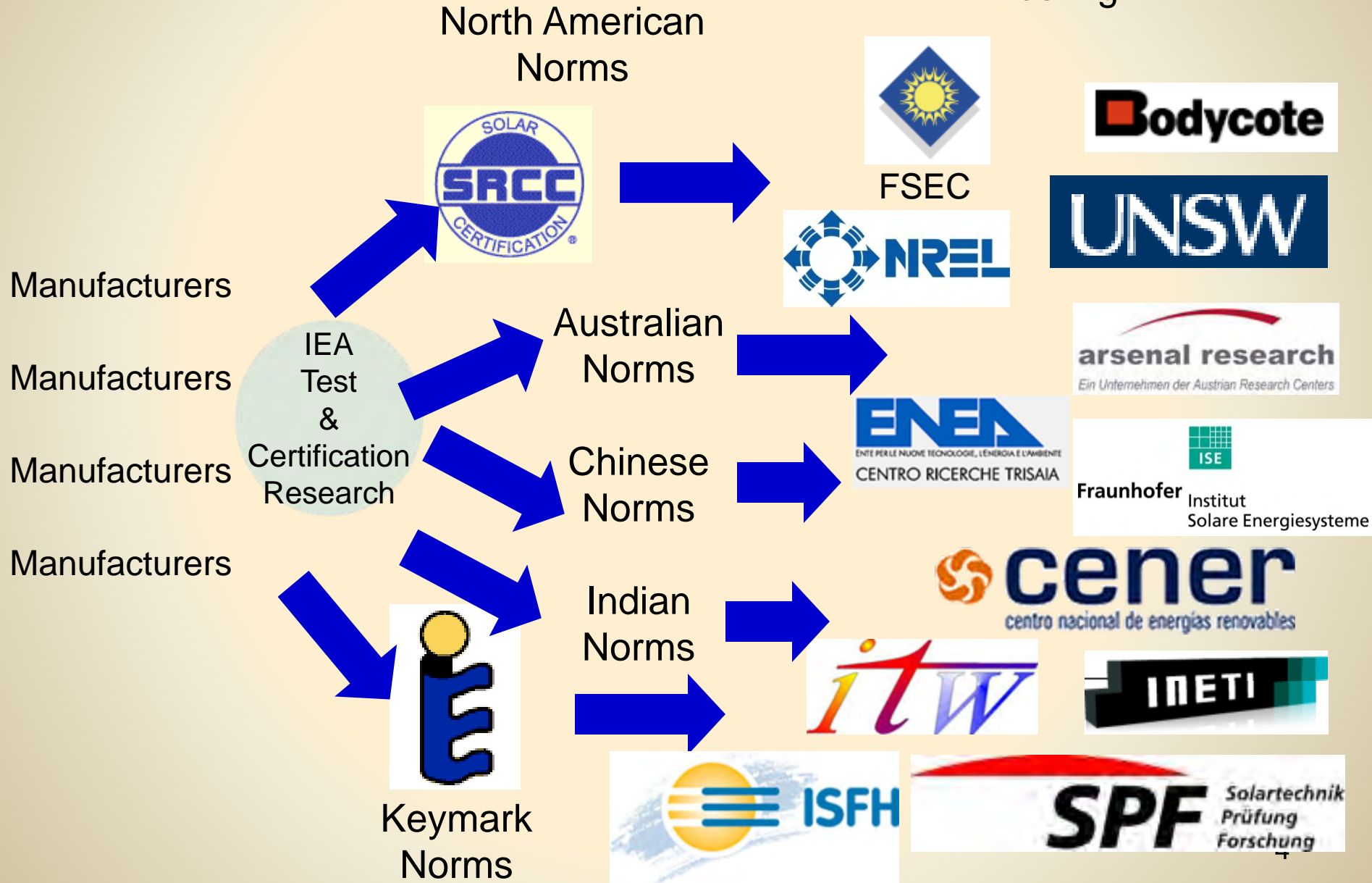
# **BACKGROUND ON TASK 43**

# 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

Testing



# 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<sub>8</sub>

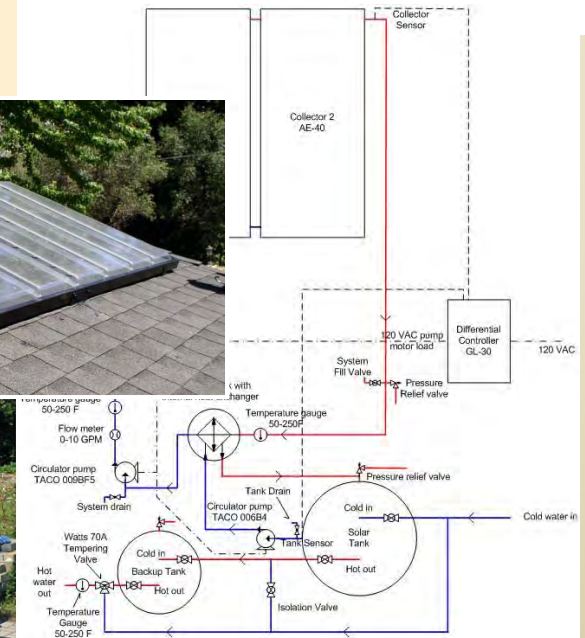


# Leverage/Coordination

- 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 Temperature 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***



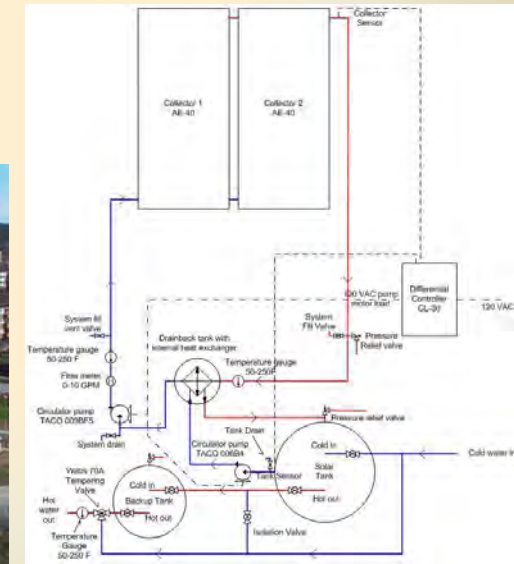
# Subtask B: Systems

**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***



Source: Informationsbüro Haustechnik



# **ACCOMPLISHMENTS**

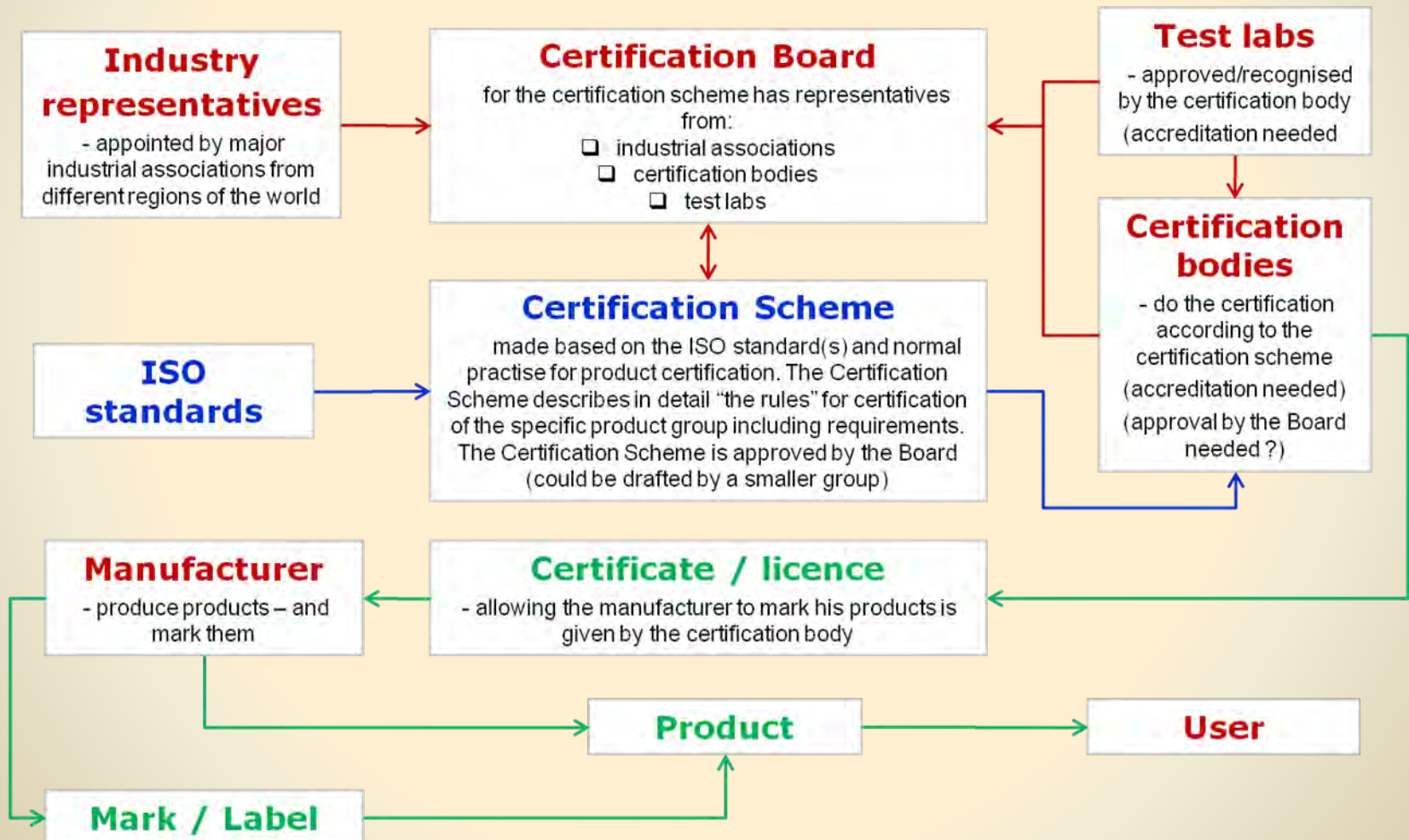
# Accomplishments: Task Experts Meeting/Roadmap Development in South Africa

- 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



# Accomplishments: Wiki Collaboration Tool Deployed, in Use

The screenshot shows a Windows Internet Explorer browser window displaying a Wiki page. The browser's address bar shows the URL <http://alkair.cener.com/Task43/default.aspx>. The page title is "TASK 43: Solar Rating and Certification Procedures".

The page layout includes a navigation menu with "Home", "Documents and Lists", "Create", "Site Settings", and "Help". A sidebar on the left contains sections for "Documents" (with sub-items "Documents", "Subtask A", and "Subtask B"), "Lists" (with "Announcements" and "Events"), "Discussions", "Sites", and "People and Groups" (with a "Recycle Bin" link).

The main content area is divided into three sections:

- Announcements:** A dropdown menu followed by the text "There are currently no active announcements. To add a new announcement, click 'Add new announcement' below." and a link "Add new announcement".
- Events:** A dropdown menu followed by a list of events:
  - 10/11/2009 12:00 AM ISES World Congress
  - 10/15/2009 9:00 AM ISO/TC 180 meeting
  - 10/16/2009 1:00 PM Task 43 meetingBelow the list is a link "Add new event".
- Documents:** A dropdown menu followed by a table header with columns "Type", "Name", and "Modified By". Below the header is the text "There are no items to show in this view of the 'Documents' document library. To create a new item, click 'Add new document' below." and a link "Add new document".

On the right side of the page, there is a logo for the "SOLAR HEATING & COOLING PROGRAMME INTERNATIONAL ENERGY AGENCY" (SHC). The browser's taskbar at the bottom shows several open applications, including "WP2 - Microsoft Outlook", "SV: First draft Task 2.1...", "LTP", "Microsoft PowerPoint - ...", and "Home - TASK 43: Sol...". The system clock shows the time as 12:30.



**NEXT STEPS/PLANS**

# Subtask A Work Plan

|  | 2009 |   |   |    |    | 2010 |   |   |   |   |   |   |   |   |   |    |    | 2011 |   |   |   |   |   |   |   |   |   |    |    | 2012 |   |   |   |   |   |
|--|------|---|---|----|----|------|---|---|---|---|---|---|---|---|---|----|----|------|---|---|---|---|---|---|---|---|---|----|----|------|---|---|---|---|---|
|  | 7    | 8 | 9 | 10 | 11 | 12   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12   | 1 | 2 | 3 | 4 | 5 |
| <b>Subtask A Activities</b>                      |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| <b>A1: Roadmap for Task</b>                      |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| <b>A2: Low-to-Medium Temp. Collectors</b>        |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| a. White Paper on Issues                         |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| b. Round Robin Tests                             |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| c. Recommendations on Test Standards             |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| d. Joint Meetings with Standards Groups          |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| <b>A3: Air Heating Collectors</b>                |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| a. White Paper on Issues                         |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| b. Round Robin Tests                             |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| c. Recommendations on Test Standards             |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| d. Joint Meetings with Standards Groups          |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| <b>A4: Concentrator Collectors</b>               |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| a. White Paper on Issues                         |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| b. Round Robin Tests                             |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| c. Recommendations on Test Standards             |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| d. Joint Meetings with Standards Groups          |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| <b>A5: Communication and Adoption of Results</b> |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| a. Detailed Communication Plan Update            |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |
| b. Website/Wiki Tool Launched                    |      |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |   |   |   |   |    |    |      |   |   |   |   |   |



# Subtask B Workplan

|  | 2009 |   |   |    |    |    | 2010 |   |   |   |   |   | 2011 |   |   |    |    |    | 2012 |   |   |   |   |   |   |   |   |    |    |    |                              |   |   |   |   |   |
|--|------|---|---|----|----|----|------|---|---|---|---|---|------|---|---|----|----|----|------|---|---|---|---|---|---|---|---|----|----|----|------------------------------|---|---|---|---|---|
|  | 7    | 8 | 9 | 10 | 11 | 12 | 1    | 2 | 3 | 4 | 5 | 6 | 7    | 8 | 9 | 10 | 11 | 12 | 1    | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1                            | 2 | 3 | 4 | 5 | 6 |
| <b>Subtask B Activities</b>  |      |   |   |    |    |    |      |   |   |   |   |   |      |   |   |    |    |    |      |   |   |   |   |   |   |   |   |    |    |    |                              |   |   |   |   |   |
| <b>B1: Issues Roadmap</b>  | ✓    |   |   |    |    |    | →    |   |   |   |   |   |      |   |   |    |    |    |      |   |   |   |   |   |   |   |   |    |    |    | White Paper Based on Roadmap |   |   |   |   |   |
| <b>B2: Component/Material Substitution, Qualification</b>                  |      |   |   |    |    |    |      |   |   |   |   |   |      |   |   |    |    |    |      |   |   |   |   |   |   |   |   |    |    |    |                              |   |   |   |   |   |
| <b>White Paper on Substitution and Report on Norms for Systems Testing</b> |      |   |   |    |    |    |      |   |   |   |   |   |      |   |   |    |    |    |      |   |   |   |   |   |   |   |   |    |    |    |                              |   |   |   |   |   |
| <b>Report on Qualification and Safety Testing</b>                          |      |   |   |    |    |    |      |   |   |   |   |   |      |   |   |    |    |    |      |   |   |   |   |   |   |   |   |    |    |    |                              |   |   |   |   |   |
| <b>B3: Simulation and Modelling</b>  |      |   |   |    |    |    |      |   |   |   |   |   |      |   |   |    |    |    |      |   |   |   |   |   |   |   |   |    |    |    |                              |   |   |   |   |   |
| <b>White Paper on Simulation and Modeling Issues</b>                       |      |   |   |    |    |    |      |   |   |   |   |   |      |   |   |    |    |    |      |   |   |   |   |   |   |   |   |    |    |    |                              |   |   |   |   |   |
| <b>B4: Analysis and Public Dissemination of Benefit</b>                    |      |   |   |    |    |    |      |   |   |   |   |   |      |   |   |    |    |    |      |   |   |   |   |   |   |   |   |    |    |    |                              |   |   |   |   |   |
| <b>Report on End User Experience and Testing</b>                           |      |   |   |    |    |    |      |   |   |   |   |   |      |   |   |    |    |    |      |   |   |   |   |   |   |   |   |    |    |    |                              |   |   |   |   |   |
| <b>Report on Test and Characterization and Public</b>                      |      |   |   |    |    |    |      |   |   |   |   |   |      |   |   |    |    |    |      |   |   |   |   |   |   |   |   |    |    |    |                              |   |   |   |   |   |
| <b>B5: Communication and Outreach Coordination</b>                         |      |   |   |    |    |    |      |   |   |   |   |   |      |   |   |    |    |    |      |   |   |   |   |   |   |   |   |    |    |    |                              |   |   |   |   |   |
| <b>Joint Meetings with Standards Groups</b>                                | ✓    |   |   |    |    |    |      |   |   |   |   |   |      |   |   |    |    |    |      |   |   |   |   |   |   |   |   |    |    |    |                              |   |   |   |   |   |

# 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 QAIiST on Coordinating Testing
- Follow Up to Engage Certification Bodies
- Expanding Participation

## 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?