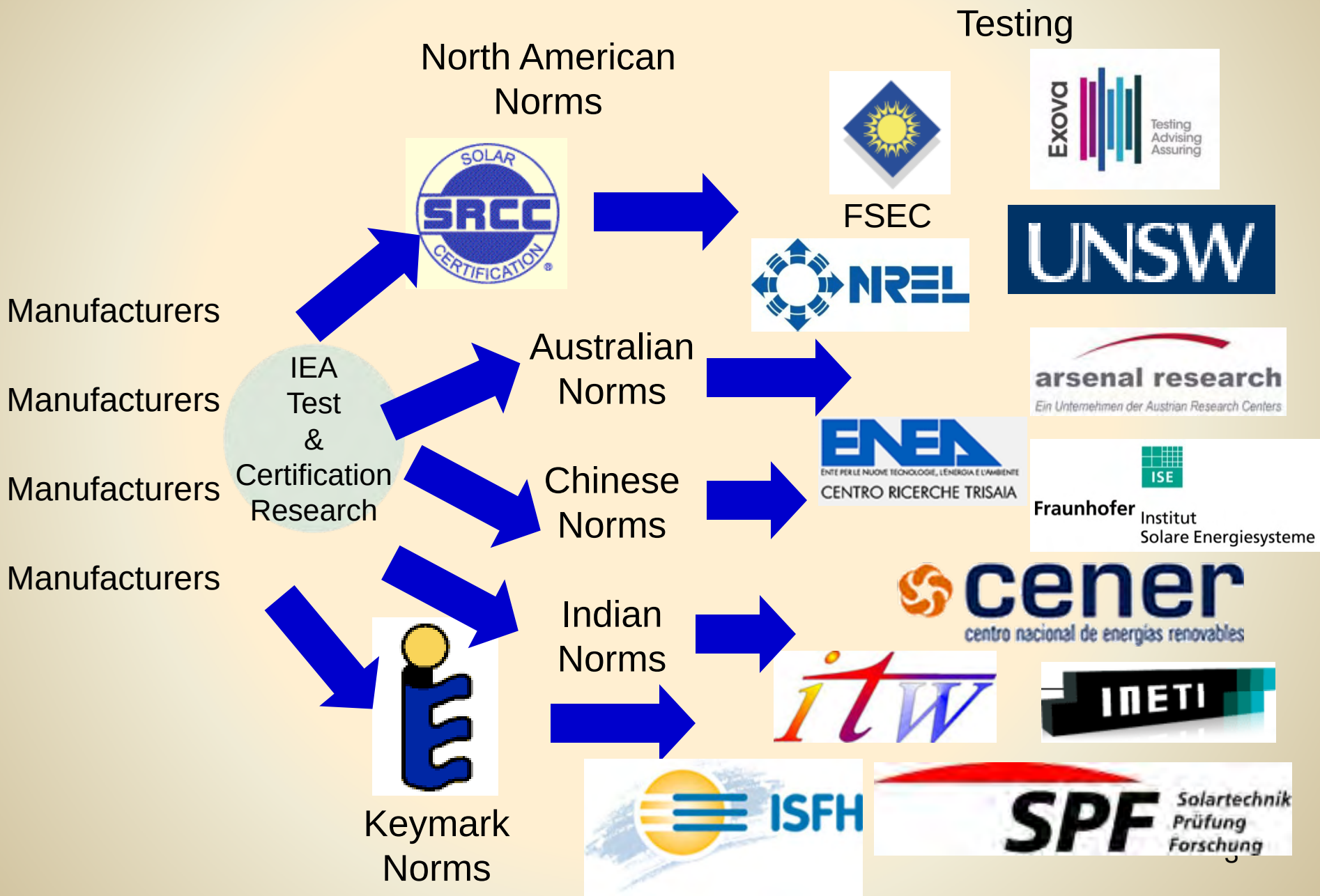
Overview/Introduction to IEA-SHC Programme TASK 43: IEA SHC Rating and Certification Procedures – Advanced Solar Thermal Testing and Characterization for Certification of Collectors and Systems

November, 2009

What is the Situation?

- Countries in Europe, North America, Australia and many individual countries have certification bodies and testing procedures for solar thermal equipment designed to protect consumers from poor performance, unsafe designs, and false claims.
- Most certification procedures rely on outside testing, and the tests have much in common from country to country – but may not be exactly identical.
- Most certification bodies only recognize tests from laboratories they certify, and that follow their technical specifications – although much of the testing is based on essentially the same ISO standards worldwide.
- Testing standards and certification bodies have not kept up with all the new technologies and system applications that have emerged recently, creating a barrier to market innovation because access to incentives and markets for new products is often tied to certification.
- Solar thermal markets are booming, governments are relying on certification to ensure incentives are given to effective products, and the testing laboratories and certification bodies are struggling to keep up with demand.

Testing and Certification Challenge



Why is it a Problem?

- Companies often have to repeat expensive and time-consuming testing and certification processes for each country/market they wish to enter, giving an advantage to companies/products already certified in a market.
- Competition is reduced and consumers are harmed by having limited access to worthy products and less competition for their business.
- If certification bodies are not taking advantage of the most effective testing standards for existing or new products, they are not as effective in providing consumer protection and consumer choice as they can be.
- Lack of coordination on testing standards and cooperation among certification bodies unnecessarily may constrain market growth by limiting the resources available for testing and certification.

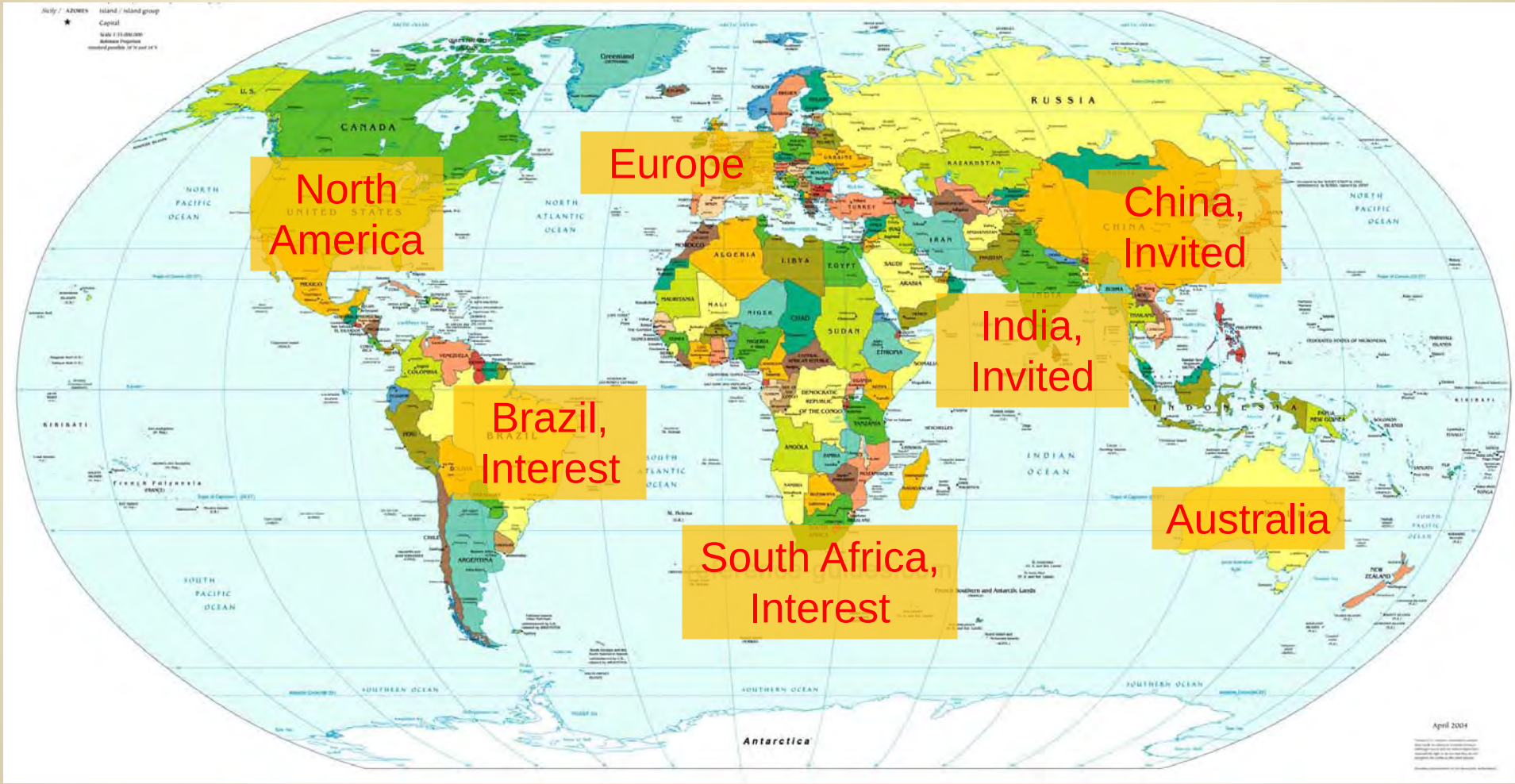
How Does Task 43 Address the Problem?

- First, coordinate research and information sharing among test labs and research institutions around the world to:
  - Identify inconsistencies and gaps in testing standards and procedures and how they are applied in different countries
  - Support new research to address problems with existing collector and system testing, and develop new procedures for emerging technologies or applications
- Second, researchers participate in standards groups like ISO/TC180,CEN/TC 312, ASHRAE, and others to share research results and lessons learned on testing standards and procedures and encourage updates to existing standards and development of new standards where necessary, and also invites representatives from these groups to be involved in Task 43.
- Third, involve organizations involved with certification schemes in Australia, North America (SRCC) and Europe (Solar Keymark) to:
  - Facilitate discussion among these groups to recognize where they have common interests and opportunities for coordinating their approaches and requirements for certification to reduce burdens on industry and enhance their service to consumers and industry
  - Explore the possibility of creating:
    - a harmonized set of testing standards that all certification bodies will recognize and require from the testing facilities they work with so that a certification in one country or region can be recognized as equivalent to certification in another country or region,
    - with flexibility to require additional tests specific to unique characteristics of an individual country or region’s solar resource and/or markets.

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.

Participation from Institutions in 8 Countries, 9 Industry Observers, Interest from 10 Institutions/Countries



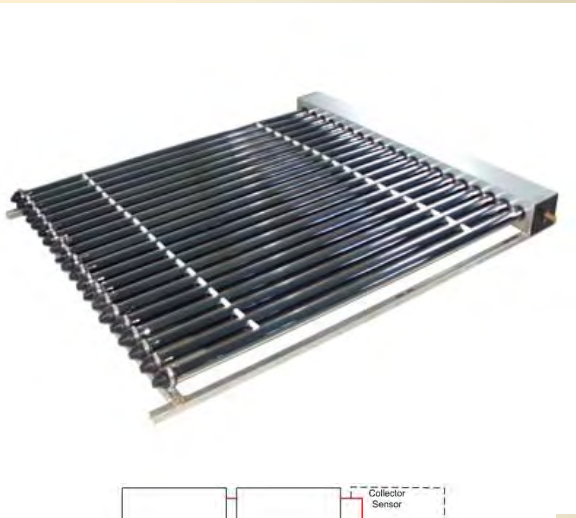
TASK LEADERSHIP AND APPROACH

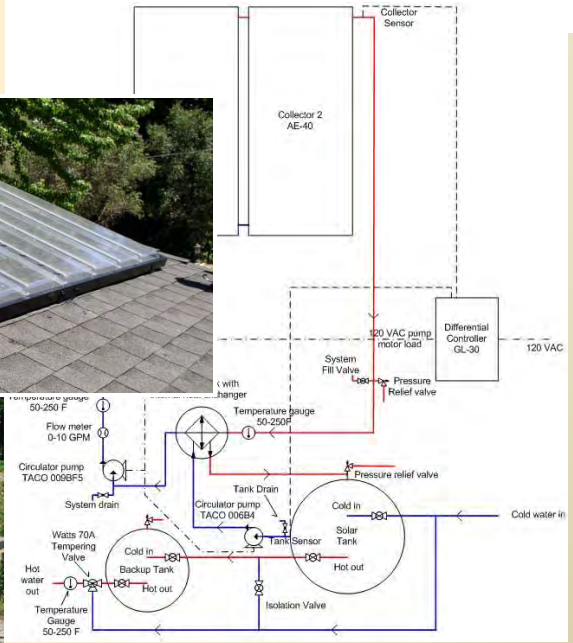
Co-Operating Agents

- 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

Subtasks

- A: Collectors *(CENER Lead, Enric Mateu Serrat)*
- B: Systems *(ITW Lead, Harald Drueck)*





Subtask A: Low-Temperature Collector Activities

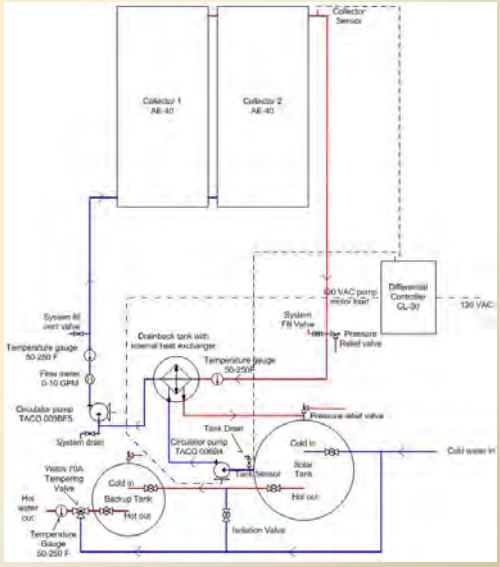
Objective: to examine existing testing and certification procedures for low-temperature evacuated tube and flat-plate collectors, air heating collectors, medium- to high-temperature concentrating collectors, to identify weaknesses, inconsistencies in application, and significant gaps.

- ***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***



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

How to Become Involved

- Visit IEA-SHC Website for more information: http://www.iea-shc.org/task43/index.htm
- Contact Project Manager for Task 43, Kevin DeGroat, (kdegroat@antares.org)
- IEA-SHC Member Countries
  - Contact Executive Committee Member for your country if you want to actively participate (see IEA-SHC website for contacts)
- Non-Member Countries
  - Request participation/observation role, requires approval by Executive Committee and IEA CERT
- Industry
  - Active in member countries request to be included on mailing lists and meetings
  - Not active in member countries request observer status and addition to mailing list
- Certification/Standards Bodies (National or International)
  - Request notification of relevant meetings and access to public materials