

GLOBAL CERTIFICATION OF SOLAR COLLECTORS

Jan Erik Nielsen

PlanEnergi, Hvalsö (Denmark)

1. Introduction

The idea of establishing a global certification scheme has been discussed in the IEA-SHCⁱ Task 43ⁱⁱ and amongst the participants in the European project IEE/QAiSTⁱⁱⁱ.

As a result of these discussions, a coordinated revision of the European collector standard EN 12975 and the international collector standard ISO 9806 is going on now - with the aim of establishing a **common EN/ISO standard for collector test methods**.

When such common international standard is realised, it would be possible to establish a global collector certification scheme.

Such global certification scheme could open up the world market for collectors as then this **one certificate** can be used all around the world to compliance with the EN/ISO “**world collector standard**”.

2. Background

The Solar Keymark certification scheme has been very successful in Europe - and works also for overseas products on the European market. But until now it was (due to rules of the owner of the mark: CEN^{iv}) only possible for European certification bodies to participate in the certification scheme and issue licences. Non-European manufacturers do not have the possibility to use local certification bodies. Even stricter for some national certification scheme like the North American SRCC certification scheme - here everybody has to use one specific certification body.

To illustrate problem: At present, if you e.g. want to sell your collector in both EU and USA, you need both the Solar Keymark and the SRCC certificates - and hence double testing and certification are required. In the future ONE “Global Solar Q-Mark” should allow you to sell in all countries in all continents.

3. Proposal for new global certification scheme

3.1. How it works

The global certification scheme will refer directly to the upcoming EN/ISO 9806 series concerning test procedures for efficiency and reliability/durability and it will be based on EN 12975-1 with respect to requirements.

The certification scheme is a 3rd party certification scheme - involving well recognized certification bodies, test labs and inspectors fulfilling strict requirements.

The main components in the scheme are:

- Factory inspecting - an inspector is checking the quality management system of the manufacturer, initial inspection before certification - and then surveillance inspection regularly e.g. every year
- Product testing - a test labs is testing collectors taken out from production line by random sampling

In fig.1 the principles of the certification scheme is shown:

- The accreditation bodies are checking the certification bodies, test labs and inspectors (and they are checking each other too)
- The certification bodies are checking if the requirements in the certification scheme are fulfilled based on test and inspection reports. The certification bodies issue the license to mark the product to the manufacturer (if requirements are fulfilled)
- The test labs test the products (collectors) according to the standards
- The inspectors inspect production lines (and sample products for testing)
- Manufacturers produce products - and mark them

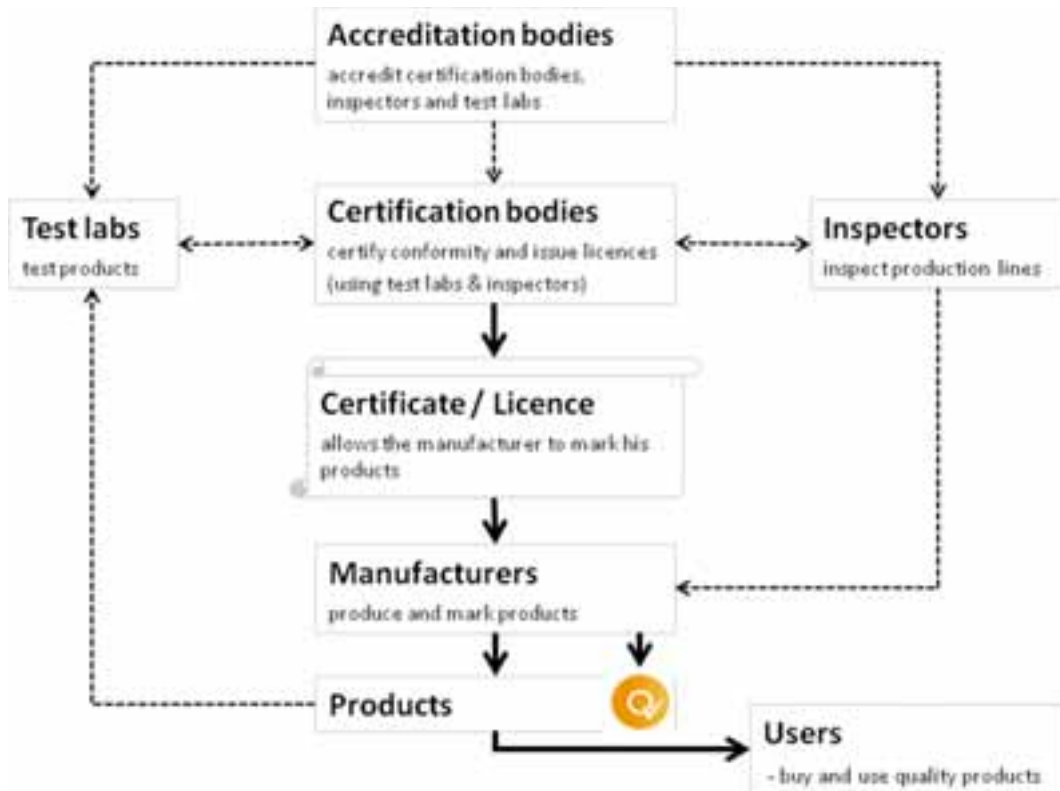


Fig. 1: Principles in the proposed 3rd party certification scheme

3.1. How to organise

Inspired by the Solar Keymark Network an organizational framework around the certification scheme is proposed: “Solar Q Network”. The idea is that both industry and the actors working within the certification scheme are involved and that they are all represented in a balanced way in the organization. See fig. 2.

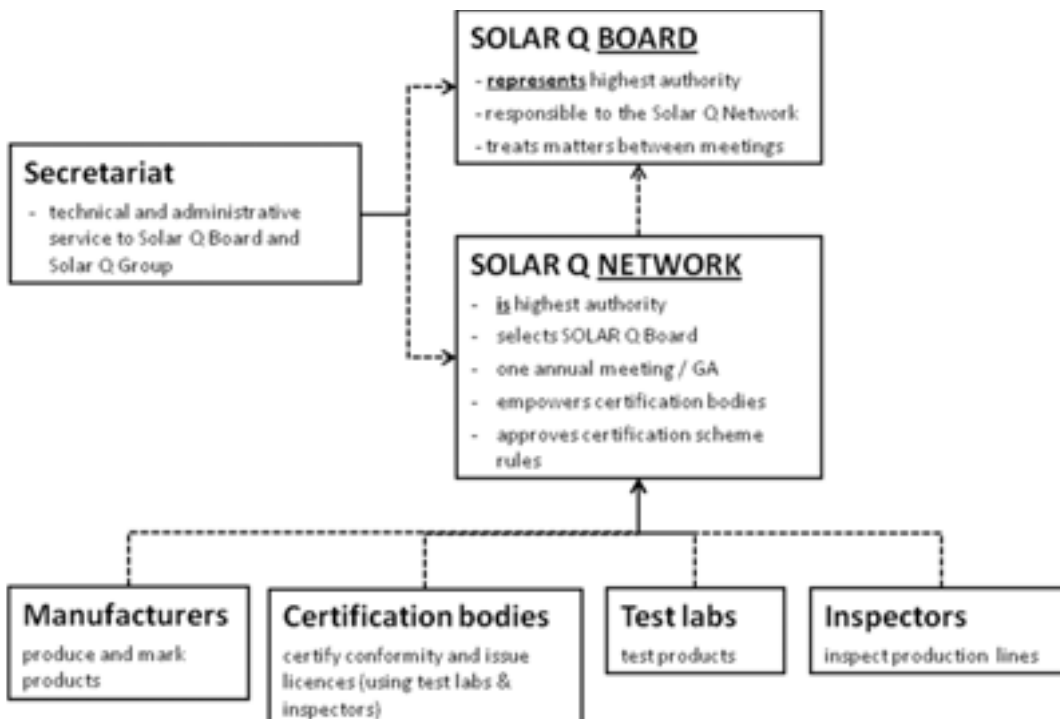


Fig. 2: How the global certification scheme could be organized

3.2. Requirements

Requirements for products

The requirements for being Solar Q certified could be based on the requirements in the European standard EN 12975-1 “Solar thermal systems and component - Solar collectors - General requirements”. This standard is being revised, taking now into consideration that the requirements should be applicable all over the world. One major step in this direction is the introduction of classes, making it possible to have certification at different levels for different parameters. For instance in cold climates with risk of strong hail strong storms and heavy snow load, requirements could/should be different from the requirements in hot and dry climates with no hails and little wind.

In fig. 3 examples of classes for mechanical load, hail, climate and performance are given.

	P [Pa]		Size [mm]		G [W/m ²]	Ta [°C]
Load C	1000	Hail C	0	Climate C	900	20
Load B	2000	Hail B	20	Climate B	1000	30
Load A	3000	Hail A	40	Climate A	1100	40

	η_{nom}
Performance F	0.35
Performance E	0.40
Performance D	0.45
Performance C	0.50
Performance B	0.55
Performance A	0.60




Fig. 3: How the global certification scheme could be organized

Requirements for accreditation bodies, certification bodies, test labs and inspectors

Accreditation bodies should be signatories to IAF MLA^v, which is a “club” of the best accreditation bodies who recognize each other.

Certification bodies, test labs and inspectors should be accredited by the above accreditation bodies according to the relevant ISO 17000 series standards.

3.4 Next steps

The next steps are:

- to finish the revision of EN/ISO 9806 standards for collector test procedures and the EN 12075-1 for requirements
- establish the Solar Q Network

With respect to the revision of the standards, work is ongoing - final published standards are expected in 2012-13. To be ready with a certification scheme and the framework around it when the standards are published, it is proposed to work on this issue in parallel.

Hence, the following time schedule for initiating the global collector certification scheme is proposed:

- Proposal for global certification scheme rules should be made. A draft has already been presented (Nielsen, 2011).
- Proposal for organization and working rules for the Solar Q Network to be elaborated before the end of 2011.
- Call for interested parties to participate in the Solar Q Network early 2012 and invite for the first Solar Q Network mid 2012. Discuss here more in detail the requirements in the certification scheme and the internal rules of the Solar Q Network.

4. References and notes

Nielsen, J.E., 2011. SOLAR Q MARK - Global Certification Scheme for Solar Thermal Collectors (*internal IEE/QAiST / IEA-SHC Task 43 document*)

5. Acknowledgements

The work on the global collector certification scheme is supported by the IEE programme and IEA-SHC.

6. Abbreviations used and links

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- ⁱ IEA-SHC: International Energy Agency - Solar Heating and Cooling, <http://www.iea-shc.org>
- ⁱⁱ IEA-SHC Task 43: IEA-SHC Task on “Solar Rating and Certification”, <http://www.iea-shc.org/task43/>
- ⁱⁱⁱ IEE/QAiST: Intelligent Energy Europe Programme / Quality Assurance in Solar Thermal, <http://www.qaist.org/>
- ^{iv} CEN: Comité Européen de Normalisation - umbrella organization for the national European standardization bodies. <http://www.cen.eu>
- ^v IAF: International Accreditation Forum - Multi-Lateral Agreement, <http://www.iaf.nu/>

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