

**September 27, 2007**  
**Solar ABCs Stakeholder Meeting**  
**Standards Breakout Session**  
**Long Beach, CA**

**Issues Raised and Comments**

- Suggest adding BIPV to list of issues for the Product Safety Panel (and maybe other panels) to address
- Product Safety Panel should deal with grounding and bonding issues
- Why do component testing if you still have to do module testing? This increases costs. Need to open up industry by qualifying cells. Then can open use replacement cells without additional module certification. Industry wants to substitute different components. Solar ABCs should look at this issue.
- Need suitable cell qualification process. Want competitive supply chain options. This is a potential area of focus.
- Semi-conductor based disconnects
- Suggest that UL offer a UL university class on UL 1703 and UL 1741

*Comments on Standards Process, Testing, Timing*

- Solar ABCs should address timing issues – overall certification program takes too long
- Backlog at testing labs – have to get behind recertification. Response: UL is working to reduce certification time and increasing capacity for testing.
- Want schedule for standard-writing committees
- Disappointed with standards process in this industry. Frustration with closed groups. Standards committees should meet more frequently. Need to move more quickly to support industry.  
Response: This is the goal of Solar ABCs – to involve more people in what is traditionally a more closed process
- Committees are too slow.  
Response: US TAG will rebuild committee through Solar ABCs
- Need push from industry to IEC to make standards happen.

**Suggestions for Solar ABCs Work**

- Arc Fault issues – aviation has looked at this issue and there may be lessons to be learned.
- Building America has an activity on building codes and BIPV issues. How can Solar ABCs coordinate with this activity?
- Suggested people look at CB Scheme as a testing and certification resource.  
Response: [www.iec.ch](http://www.iec.ch) has information on execution of IECEE programs.
- Need more specific direction on how TPP's can participate.

## **Question and Answer**

Announced that there will be an International Arcing Conference at the end of October. Information will be posted on the Solar ABCs web site.

Question: What is the timetable for the acceptance by ANSI of IEC 61730.

Answer: Will go out for comment by end of the year and hope to see acceptance by Spring 2008.

Problem – Sometimes national differences in standards take the standards in different directions

Response: Differences in national codes and standards make this inevitable and difficult to avoid. While we try earnestly, it is very difficult to write one set of requirements that address concerns over the entire world.

Question: What is schedule for next version of UL 1741

Answer: Draft will be release by the end of the year.

Question: Will this standard be a U.S. standard or translated internationally?

Answer: U.S. and International Standards are different. International will be based on U.S. Standard. Development activities in IEC 62019 are being coordinated into UL 1741, and visa versa.

Question: What might change in standards for polymeric materials?

Answer: International standards require that all polymeric have a temperature rating and a Relative Thermal Index. Want to be sure material does not delaminate over time and does not have dielectric breakdown.

Question: What about polymeric roofing materials?

Answer: Solar standard will not apply to roofing materials, but will apply to BIPV products. These products are presently evaluated to both UL1703 and UL790 for roofing materials.

Question: On polymeric materials, will standard apply to overall laminate or to individual materials?

Answer: Could potentially happen either way.

Question: What about new accelerated test methods to evaluate materials?

Answer: NREL has funding to study new methods of accelerated testing. Sandia/NREL team will begin work this FY.

Question: Where are we on ungrounded, bi-polar inverter requirements?

Answer: We are meeting in 3 weeks. IEC 62109 SAFETY OF POWER CONVERSION EQUIPMENT FOR USE IN PHOTOVOLTAIC POWER SYSTEMS – PART 1 – GENERAL REQUIREMENTS will be submitted to IEC by the end of the year. The

UL1741 adopted version is expected to be out to the STP by year end and published in first half of 2008.

Question: Where is work on BIPV Standards?

Answer: Some in IEC TC 82 WG 3 and some in TC 64 – Building Standards. There is some overlap.

Question: Will Solar ABCs monitor EU programs so we do not re-invent the wheel?

Answer: Other than IEC participation, this is not part of current work. Will ask Steering Committee if we should add? Europeans have a different process.

Question: What is the status of the Standard process for IEC 62109

Answer: There are different sections to this standard:

- 1 general document – close to ballot
- 2 inverters – to be sent for ballot by end of 2007.
- 3 charge controllers – to follow 62109-2
- 4 AC modules to follow 62109-3

Question: How are we going to bring standards together internationally?

Answer: Any country can adopt international standard with deviations for local country.

Question: What about listings from Intertek and CSA?

Answer: Each listing agency can list products to published standards according to their own certification programs. CSA purportedly lists bi-polar inverters, although to what standards is unknown because UL1741 does not presently include requirements to address the product and system concerns related to these products.

Question: Related to Thin Film Standard IEC 61646, not all films will fail the same way. Will Solar ABCs address this?

Answer: The IEC standard address this issue. A new Standard (second edition) is expected in Spring 2008.

Question: What is the standards adoption process for the rest of the world (not US, not Europe)?

Answer: Each country has its own process for adopting IEC Standards. Local deviations are always a possibility.

Question: If cells have qualification testing, then still need to do IEC 61215 for module qualification? Can you substitute other cells and avoid retesting the module?

Answer: Cell changes can drastically affect module safety, performance and test results therefore modules with different cells must be tested again. This can be reduced and possibly eliminated once a cell qualification program is established.

Stakeholder Comment: Why do component testing if you still have to do module testing. This increases costs. Need to open up industry by qualifying cells. Then can open use replacement cells without additional module certification. Industry wants to substitute

different components. Solar ABCs should look at this issue. Need suitable cell qualification process. Want competitive supply chain options. See above response.

Stakeholder comment: Address timing issues – tests take too long.

Response: UL is working to speed testing time and increasing capacity for testing.

Noted that the 600V limit is an NEC issue only on residential/multi-family dwellings.