

## International Conference on Sustainability in Energy and Buildings

### Invited Sessions

**Title of Session: LCA Methodology for Renewable Energy Assessment**

**Name of Chair: Rainer Zah**

**Session Description:**

In order to evaluate the environmental impacts of different energy systems the life cycles of complete energy chains have to be covered. Life Cycle Assessment (LCA) is the most suitable approach serving this purpose. However, when dealing with future renewable energy systems, current LCA methodology reaches its limits. For example, land use interaction of bio-based energy or site-dependent impacts of air pollutant emissions from electricity production call for regionalized life-cycle modelling, which takes into account locations of environmental flows on the process level in a more detailed way. Methods for assessing the availability of scarce metals are so far lacking, although long-term availability of specialty metals like rare earth elements play a key role for the diffusion of future energy technologies like PV or stationary fuel cells.

Goal of this session is therefore the critical assessment of life cycle methodology for the assessment of renewable energy technologies. The session should be based on LCA studies that deal with renewable energy use in the building sector. Potential topics are:

- Dealing with co-products in the LCA of energy systems
- Dealing with land use in the LCA of bio-based energy systems
- Dealing with uncertainty in the LCA of energy systems
- Dealing with up-scaling of new energy technologies from the lab to the final market
- Dealing with resource depletion caused by renewable energy systems (e.g. rare earths)

**Website URL (if any):**

[www.empa.ch/lcam](http://www.empa.ch/lcam)

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