

## 38<sup>th</sup> LCA Discussion Forum

# ENVIRONMENTAL ASSESSMENT OF FUTURE TECHNOLOGIES: HOW TO TRIM LCA TO FIT THIS GOAL

June 19, 2009 Zürich, 9h15, ETH Central Building, GEP Pavillon

We kindly invite you to the **38<sup>th</sup> discussion forum on Life Cycle Assessment**  
This event will be held in English

New and innovative technologies have to compete with well-established and mature technologies. Even though new and innovative technologies may claim substantial efficiency gains in the future, they are assessed based on their current performance, measured in the lab or in pilot plants.

Thus, the environmental assessment of such future technologies faces several challenges. Firstly, the performance and efficiency of operational scale technologies will differ from those of laboratory or pilot scale equipment or from performance and efficiency figures gained with process modeling. Secondly, the basic economic, environmental and social conditions will change with time and thus will differ from the basic conditions of our current economy, environment and society. Neglecting such expected changes in the environmental assessment of future technologies may lead to a severe impediment for the market entrance and growth of promising future technologies. Thirdly, the predictions of technological, societal, economical and environmental developments are inherently uncertain and therefore subjected to dispute.

Within the recently accomplished NEEDS project (New Energy Externality Developments for Sustainability, 6th framework program of the European Commission) on the improvement of the assessment of external costs of electricity supply, experiences were gained in the field of long-term environmental technology assessment with the help of life cycle assessment. The discussion forum will on one hand shed light on the main drivers and principles that ensure a sensible and fair assessment of far future technologies. We will listen to representatives from national and international companies, who tell us their approach in long-term strategic planning and the potential role of LCA. On the other hand, the most recent European developments in the identification of specific external damage costs per kg resource extracted and pollutant emitted will be touched upon.

The DF 38 will especially discuss the following questions:

- Is there a role for LCA in far future technology development?
- If yes, how to trim LCA to fit to this role?
- How does industry assess future trends in consumer needs and product development?

We look forward to meeting you in Zürich!

Rolf Frischknecht & Wolfram Krewitt

***Final Program:***

Time	Title	Speaker
8:30	Registration, Coffee and Croissants	
9:15	Welcome	Rolf Frischknecht, ESU-services
	External costs and multi-criteria decisions	
9:20	External cost assessment of future electricity supply systems *	Wolfram Krewitt, DLR
9:45	Monetary assessment of land use *	Walter Ott, econcept
10:10	Multi Criteria Decision Analysis of power systems *	Stefan Hirschberg, PSI
10:35	Discussion	
10:45	<i>Coffee break</i>	
	Long-term LCI modeling aspects	
11:15	LCI of future electricity supply systems *	Rolf Frischknecht
11:40	Integrated Modeling and Analysis of Power and Transportation Systems	Matthias Galus, Power Systems Laboratory, ETHZ
12:05	Integrating Technical Scaling Laws into LCA	Marloes Caduff, Empa
12:30	Discussion	
12:40	<i>Lunch break</i>	
	Industry implementation and case studies	
13:40	Long-term power generation visions in the context of economical and political realities	Walter Gränicher, former President Alstom Power Service and President Alstom Switzerland
14:10	Environmental assessment of future photovoltaics	Mariska de Wild-Scholten, ECN Solar Energy
14:20	Eco design of a solar lawn mower; lessons learned with LCA	Jacques Richard, Eric Vittecoq HES-SO Genève / hepia
14:30	Factory Planning for a Start-up Technology - Based on selected criteria for Oerlikon Solar's PV technology	Irene Steimen, Factory Planning Oerlikon Solar
14:40	<i>Coffee break</i>	
15:10	Sustainable Urban Form: Using LCA Tools to Appraise Current and Future Technology Options	Matthew Chester, University of Leeds
15:20	Clean Sky Project - Assessing new technologies for aircrafts	Samuel Vionnet, Laboratory of Composite and Polymer Technology, EPFL
15:30	Innovative Technologies to reduce Resource Use and Greenhouse Gas Emissions - the Case of Lightweight Boards	Silke Feifel, FZK, ITAS-ZTS
15:40	Prospective assessment of nanotechnology: case study on silver in textiles	Tobias Walser Master Student ETHZ
15:50	Discussion: role of and requirements on LCA regarding long-term development of products and technologies	Rolf Frischknecht
16:30	Feedback, wrap-up and farewell	Rolf Frischknecht

\* results from the NEEDS project  
(New Energy Externality Developments for Sustainability, 6th framework program of the European Commission)