Karsten Schischke, Fraunhofer IZM
Pol Arranz, Maria Anzizu, Trama Techno Ambiental

Focus Group Meeting - Photovoltaics

Barcelona,
26 September 2011

Project Intro

LCA to go - Boosting Life Cycle Assessment Use in European Small and Medium-sized Enterprises

Key question: *How to implement environmental life cycle considerations in SMEs?*

- Benefit oriented: Everything can be assessed, but how to generate valuable information?

  Examples:

  – "Promotional" data for marketing / customer relations

  – Guiding internal decisions: better product design, supplier selection

Project Intro

LCA to go

- Develop an easy-to-use webtool to facilitate assessments
- Specific interest – specific answer; we will not develop a tool, which explains the whole world
- Link environmental aspects to economics and quality
- Every sector is different: Sectoral approaches

Project Intro

Sectors

- bio-based plastics,
- industrial machinery,
- electronics (including printed circuit boards, semiconductors and passive components),
- renewable energy (exemplarily: photovoltaics),
- sensors, and
- smart textiles

Project Intro

LCA to go – project facts

- Total Cost: 5.09 million Euro
- EC Contribution: 3.5 million Euro
- Instrument: FP7, Small or medium-scale focused research project
- Duration: 48 months
- Start Date: 2011-01-01
- Consortium: 18 partners from 9 countries
- Project Coordinator: Fraunhofer-Gesellschaft
- Website: www.lca2go.eu


LCA to go

Green Paper "Photovoltaics"

LCA to go

Philosophy

- We anticipate what might be of interest to you
- Let's develop something useful

Green Paper "Photovoltaics"

LCA to go

Scenarios

(1) Environmental Label for Photovoltaic systems

(2) Calculator for the energy payback time or Net Energy Gain (NEG) of photovoltaic systems

Label
- *scope*
- *referenced standards*
- *indicators*

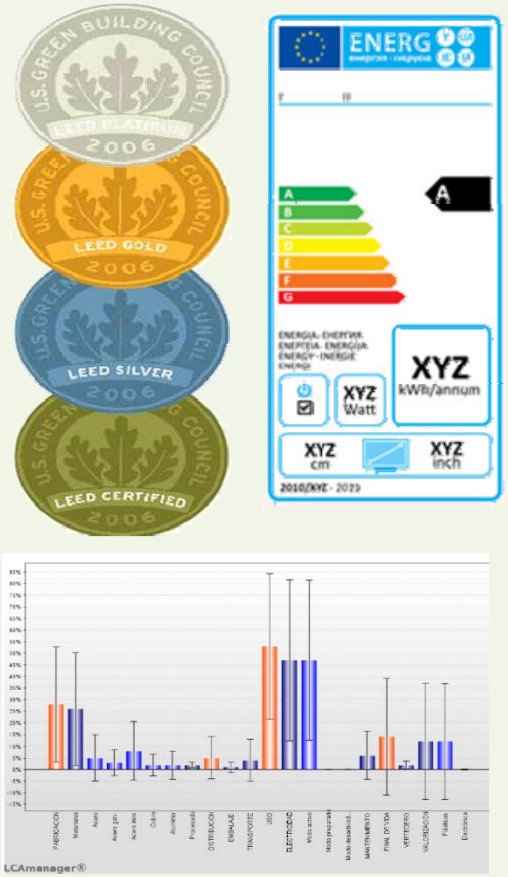
Payback calculator
- *parameters*
- *life cycle data*
- *use scenarios*

Green Paper "Photovoltaics"

LCA to go

(1) Environmental Label for Photovoltaic systems

- level of information
  - a. quick comparative reference
  - b. basic benchmark indicators (e.g. CO2 emission per kW inverter)
  - c. more detailed information on specific environmental impacts
  - d. additional information
    - Quality, reliability, lifetime, costs (and income)



Green Paper "Photovoltaics"

LCA to go

(1) Environmental Label for Photovoltaic systems

- environmental label could cover either
  a. Complete PV installation projects (individual labelling per project)
     a. New installation
     b. At regular technical inspection
  b. Complete PV systems (label is granted for a system, label could be displayed e.g. in a product catalogue)
  c. Components
     - (All or selection)

Green Paper "Photovoltaics"

LCA to go

(1) Environmental Label for Photovoltaic systems

- Label criteria should comprise an environmental assessment of your products (individually the manufacturing phase of <u>your</u> product including part of the real supply chain, but other phases as well)
  - Alternative: Generic data for components and sub-assemblies, technologies

Green Paper "Photovoltaics"

LCA to go

(1) Environmental Label for Photovoltaic systems

- Third party verification of the Environmental Product Declaration
  - not needed
  - webtool should facilitate third party verification
  - certification should be an integral part of the webtool application


LCA to go

Green Paper "Photovoltaics"

LCA to go

(2) Calculator for the energy payback time or Net Energy Gain (NEG) of photovoltaic systems

- energy delivered by a photovoltaic system compared with the energy invested in production of the PV system:
  - a) energy payback time
  - b) Greenhouse Gas Emissions (CO_2) payback time
  - c) payback time of other environmental impacts (acidification, waste generation, water use or similar)
  - d) Net Energy Gain (NEG)
  - e) Net Greenhouse Gas Emissions (CO_2) Reduction
  - f) Net reduction of other environmental impacts (acidification, waste generation or similar)

Green Paper "Photovoltaics"

LCA to go

(2) Calculator for the energy payback time or Net Energy Gain (NEG) of photovoltaic systems

- Purpose
  - a) optimised planning of a PV project (user of the webtool: Engineering contractor)
    - (internal) planning tool
    - documentation tool to demonstrate environmental performance of the project
  - b) supplier selection (user of the webtool: Engineering contractor)
  - c) pre-screening for e.g. private households, to be guided towards suitable systems

Green Paper "Photovoltaics"

LCA to go

(2) Calculator for the energy payback time or Net Energy Gain (NEG) of photovoltaic systems

- Calculation could include also costs (or be linked to any cost calculation tool)


LCA to go

Green Paper "Photovoltaics"

LCA to go

Outlook

- Get involved in further developments
- Data mining (interest in making your case a project case?)
- Road testing of the webtool

LCA to go

The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007- 2013) under grant agreement n° 265096

Fraunhofer IZM

tta Trama TecnoAmbiental