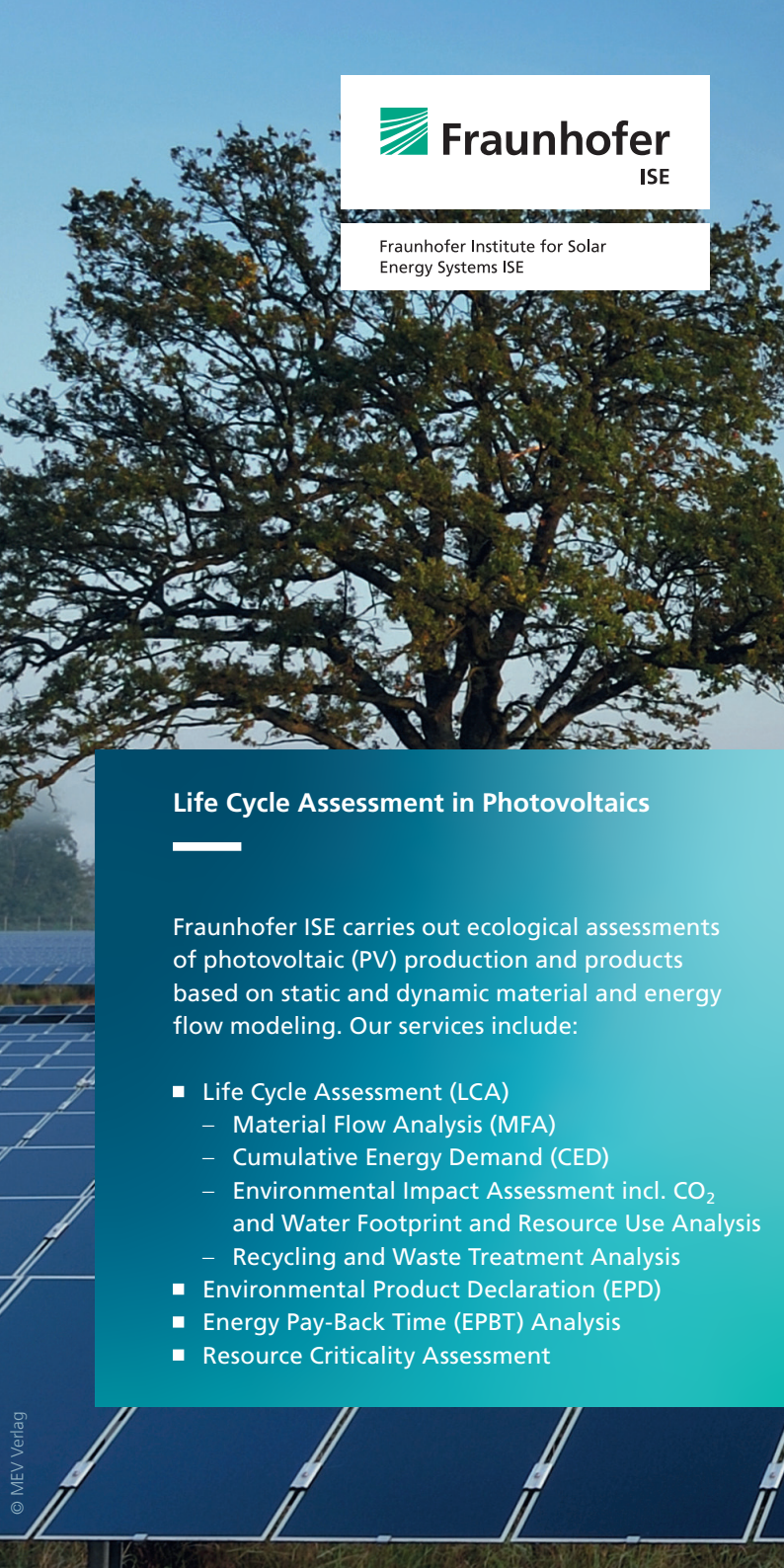

Fraunhofer ISE

Fraunhofer Institute for Solar Energy Systems ISE

Life Cycle Assessment in Photovoltaics

Fraunhofer ISE carries out ecological assessments of photovoltaic (PV) production and products based on static and dynamic material and energy flow modeling. Our services include:

- Life Cycle Assessment (LCA)
  - Material Flow Analysis (MFA)
  - Cumulative Energy Demand (CED)
  - Environmental Impact Assessment incl. CO_2 and Water Footprint and Resource Use Analysis
  - Recycling and Waste Treatment Analysis
- Environmental Product Declaration (EPD)
- Energy Pay-Back Time (EPBT) Analysis
- Resource Criticality Assessment

The production and operation of all components of the PV value chain, like any economic activity, leaves an ecological footprint and has an impact on the environment as well as resource consumption. Through Life Cycle Assessment (LCA) we assess the environmental impact over the entire life cycle in various impact categories such as CO_2 and water footprint and resource use analysis.

To do this, we virtually map and model the energy and material flows of current manufacturing environments to create a digital twin. Our models allow both static and dynamic scenario analysis as well as variation of technologies and value chains. We not only consider the manufacturing and recycling processes, but also compare different production locations.

We analyze the specific ecological footprint of our clients' individual value chain, production process and product. From this, we derive the advantages in market access by generating Environmental Product Declarations (EPD), Energy Pay-Back Time (EPBT) calculations, including CO_2 pricing instruments.

Further information on our website:
ise.link/technology-assessment

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