



Energy More than saving electricity

The first energy and climate protection concept for the city of Heidelberg, created by ifeu in 1990, formed the starting signal for the big issue of energy. Since then, the ifeu experts have been researching and advising on all topics of energy transition – renewable energy, efficiency and sufficiency.

We conduct studies, simulations, scenario calculations and technology evaluations, develop policy instruments, create municipal climate protection concepts and design discussion and participation processes. Our building model (GEMOD) and the heat map enable strategic analyses of how building renovation and renewable heating can be meshed together by 2050. We develop, realize and support flagship projects, for example innovative building concepts, new consulting tools or intelligent measuring technologies. Being an established research institute, we possess an extensive network, a detailed toolkit of models and a practice-oriented approach to research topics. We support strategies for a climate-neutral future at international and national level.



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More than 40 years of ifeu Independent environmental research

The Institut für Energie- und Umweltforschung Heidelberg (ifeu) was founded as an independent, non-profit research institute by scientists from the University of Heidelberg in 1978. Today, ifeu is one of the leading research and consultancy institutes in Germany. More than 80 employees from different disciplines work at ifeu. ifeu is politically neutral, financially independent and a member of Ecornet – Ecological Research Network. Our institute seeks answers to urgent environmental and sustainability questions in a scientific, independent, practical, transdisciplinary, creative and holistic manner.



Mobility
More than a green wave

Technical and social innovations are transforming the mobility sector much faster and more dramatically than ever before. Yet what do these changes actually mean for the environment? For over 20 years, the ifeu scientists have been working on modelling the emissions from all transport systems and have developed measures to reduce them.

Back in the early 1980s, when forest dieback was a major issue, ifeu analysed the effects of introducing catalytic converters as well as a national speed limit and pushed transport emissions into the spotlight of public debate. With the TRansport Emissions MODell (TREMODO), ifeu created a standard for transport emissions calculations. Building up on this, the TriGGER Tool supports countries in compiling greenhouse gas inventories for the transport sector. This is completed by life cycle assessments (LCA) for different drive trains. Through our research and consulting work, we support public and private clients at municipal, national and international level on their journey to post-fossil mobility.



Industry + Products
More than consumption

From protecting citizens against pollutants to environment-oriented product design to sustainable consumption – our “Industry and Products” work area covers a wide range of subjects. Which raw materials are suitable for the fabrication of sustainable products? How can production processes be optimised? What happens to these products at the end of their life cycle?

To answer these questions, ifeu creates holistic environmental footprints. On behalf of companies, administrations and private individuals, we conduct research into industrial plants and the evaluation of products. We examine the approvability of power stations, waste management plants and production sites in environmental impact studies and determine the material flows and emissions inventories of greenhouse gases and pollutants for a wide range of processes. At product level, we create life cycle assessments based on ISO standards, with a particular focus on the packaging and chemical industries. In international projects we promote sustainable development through our research and consulting.



Biomass + Nutrition
More than a footprint

The first life cycle assessment for a bio-fuel in Europe was performed in 1991 by ifeu: a complete life cycle assessment was conducted and founded in theory. Almost parallel to this, our “Life cycle assessments for graphic papers” was the first one to be conducted for renewable resources; surveys of agricultural methods and foodstuffs followed. Our vision is a production optimised for sustainability and the use of biomass as a renewable raw material.

Over the past 20 years, we have performed life cycle assessments on hundreds of food products. The food CO₂-calculator that ifeu helped to develop is an interactive tool and open to the public. Further focuses include renewable raw materials and the investigation of bioenergy sources. Biomass can be used as a food source, but also as a raw material and energy source. We determine biomass potential, evaluate the sustainability of current and future biomass uses such as in biorefineries, perform life cycle assessments and highlight the opportunities and risks of biomass use.



Resources
More than one way of thinking

Global population and economic growth intensify the pressure to protect natural resources such as raw materials, energy, land, water and biodiversity. ifeu develops evaluation methods for the gentle use of natural resources, compares the environmental benefit of various options for action and supports sensible recycling methods in practice.

An essential building block for resource conservation is the closure of material cycles. To this end, we investigate the use of biotic and abiotic raw materials and evaluate new solutions: from use of primary biomass as a fuel and construction material via the clever multiple use, i.e. biomass cascades to fermentation and composting. With the help of life cycle assessments, we compare the life cycle of raw materials, primary products and semi-finished products, taking into account technologies, forms of use and recycling. We develop new models, methods and performance indicators - for example, how area and its land use quality can be taken into account in life cycle assessments.