



Funding subject 6: Renewable energy, energy conservation and energy efficiency

The energy transition is a major project that will involve all of German society with the goal of fully transitioning from fossil fuels and nuclear power to sustainable, climate-neutral energy sources and energy usage by 2050. Germany will only be able to achieve its climate goals through a combination of measures. These include:

- the expansion of renewable energies, including the necessary distribution and storage infrastructure
- improving energy efficiency and implementing energy saving measures
- optimising the entire energy system in terms of the increasing use of fluctuating renewable energies, greater

flexibility in terms of demand, and the coupling of the consumer sectors power, heat and mobility

- consideration of environmental and social compatibility as well as aspects of participation and acceptance

We need innovative, exemplary ideas and interdisciplinary approaches from applied research, practical development and testing of technology, and communication and education on environmental topics that are aimed at specific target groups, keeping in mind digitisation, which affects all of these areas. The DBU supports projects that involve small- and medium-sized enterprises (SMEs) in particular.

In particular, the following measures are eligible:

- Development, optimisation and exemplary (both in terms of its exemplary nature and ability to be used as a template) application of renewable energies; in the case of projects that involve the use of biomass as a source of energy, the funding is focussed on optimising existing systems and using residual waste products
- Development, optimisation and exemplary applications of innovative technologies for efficient energy conversion and energy storage (e.g. for heating and cooling, Power-to-X)
- Development, optimisation and exemplary adaptation of operational processes on the basis of new energy sources (e.g. sector coupling) and a fluctuating energy supply (e.g. through demand-side management); this also includes new operator and business models for cross-plant coupling of energy flows (e.g. waste heat)
- Development, optimisation and exemplary application of innovative solutions for reducing energy consumption in manufacturing and handling processes in industrial applications, retail and the service industry; this also includes supply and interface technologies (e.g. steam, pressure, etc.) as well as operational logistics and transport processes, taking into account possible rebound effects
- Development, optimisation and exemplary application of comprehensive, systematic aspects of data transmission (e.g. for decentralised energy supply, smart grids)
- Energy-saving, low-emission development of drives in mobile applications
- Development, optimisation and testing of new approaches to dissemination of information, transfer of knowledge and qualification as well as education and professional training, especially for children, young people, trainees and university students; this also includes new approaches to solutions, methods, and formats in the areas of participation, increasing acceptance and conflict resolution
- Development of new concepts and technical solutions that are environmentally friendly and promote human health and nature conservation as well as the use of renewables

DBU-funding – competent and service-oriented

The Deutsche Bundesstiftung Umwelt (DBU) can look back on more than 25 years of funding. The foundation has a broad wealth of experience and professional expertise in various fields. In its work, the DBU can rely on a broad network of experts working as honorary consultants.

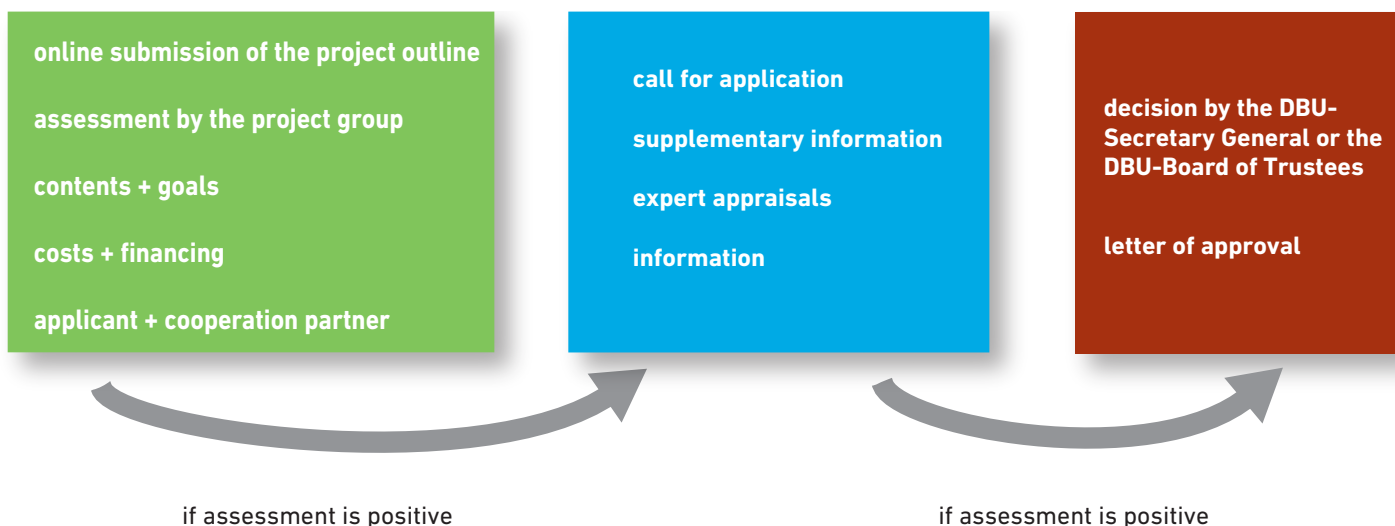
The DBU is independent and neutral from any political party. When submitting an application, only the technical quality and the innovative content of the application are important. The DBU offers its applicants competent, result-oriented advice and individual support by a highly qualified, interdisciplinary team. The internal

assessment of the projects and the external evaluation lead to a further development and qualification of the project proposal.

The DBU accompanies project partners from the project outline to implementation and provides support in finance and expertise.

DBU-partners of particularly successful projects are also supported in the dissemination of their project results by appropriate communication measures (trade fairs, exhibitions, events, publications, press work).

From outline to funding



First steps in a project outline

We are interested in receiving innovative, exemplary project ideas which contribute to the reduction of CO₂-intensive processes.

Initially, it should be clear:

- Does the project idea fit the support subject?
- Does the project idea involve at least one or more solution approaches?

If this is the case, the following criteria must be taken into account when preparing a successful project outline:

- The objectives of the project outline are directly related to the support subject.
- The methods, processes or products developed go beyond the current state of the art/knowledge or develop it further.
- The solution approach is tested in practice and examined for strengths and weaknesses.

- The solution approach can be used as a model for similar problems.
- The special unique selling point of the project in terms of technical significance and/or innovation is named.
- The results of the project will be communicated to the public and relevant experts in a target-group-specific manner.
- The project offers approaches for related education and qualification.

If these criteria apply, interdisciplinary and systemic project approaches are of particular importance to the DBU.

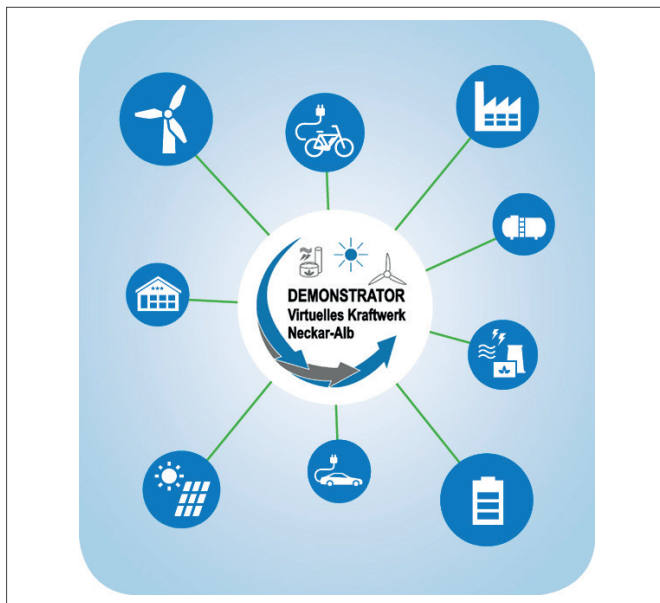
You can submit your detailed project outline online www.dbu.de/antragstellung

Exemplary DBU-funded projects

The following projects show an excerpt from the thematic range of funding subject 6 and specify the implementation in the fields of action mentioned on page 1. Further information on the projects can be found at www.dbu.de

More wind energy (AZ 27118)

There are currently wind turbines with a total output of around 20,000 MW in Germany that feature outdated designs and are fitted with rotor blades that were originally designed for the aviation industry and were not optimised for use on wind turbines. WindGuard Engineering GmbH, headquartered in Bremerhaven, Germany, is therefore looking for ways to modify these rotor blades that can be implemented during repairs, for example. As part of this project, rotor blades of existing wind turbines were tested in wind tunnels, and possible modifications were developed using CFD simulations. The optimisation measures are intended to significantly increase the output of the wind turbines without additional capacity and without increasing noise emissions. The latter is thanks to the acoustic optimisation of the rotor blades. The optimisation measures are currently undergoing testing and evaluation in terms of feasibility, expected yield increase and noise emissions.



SMEs in virtual power plants (AZ 33154)

A virtual power plant is an association of decentralized electricity producers and consumers who can take over the tasks of a conventional power plant or pumped storage, through coordinated actions. The project team based at the ebök Institute in Tübingen wants to clarify how small and medium-sized enterprises (SMEs) from different sectors can be integrated into a virtual power plant. Through the flexible operation of their producers and consumers, the idea is that companies should help to compensate for variations in the electricity grid caused by fluctuating, regenerative sources. With the chosen multi-agent approach, in the manner of an industrial symbiosis, the companies would trade their power supplies on a communications platform with an aggregator while retaining complete control over their processes and data - which, for the virtual power plant, means a paradigm shift from remote control to cooperation. The project team will develop a guide for SMEs and aggregators.

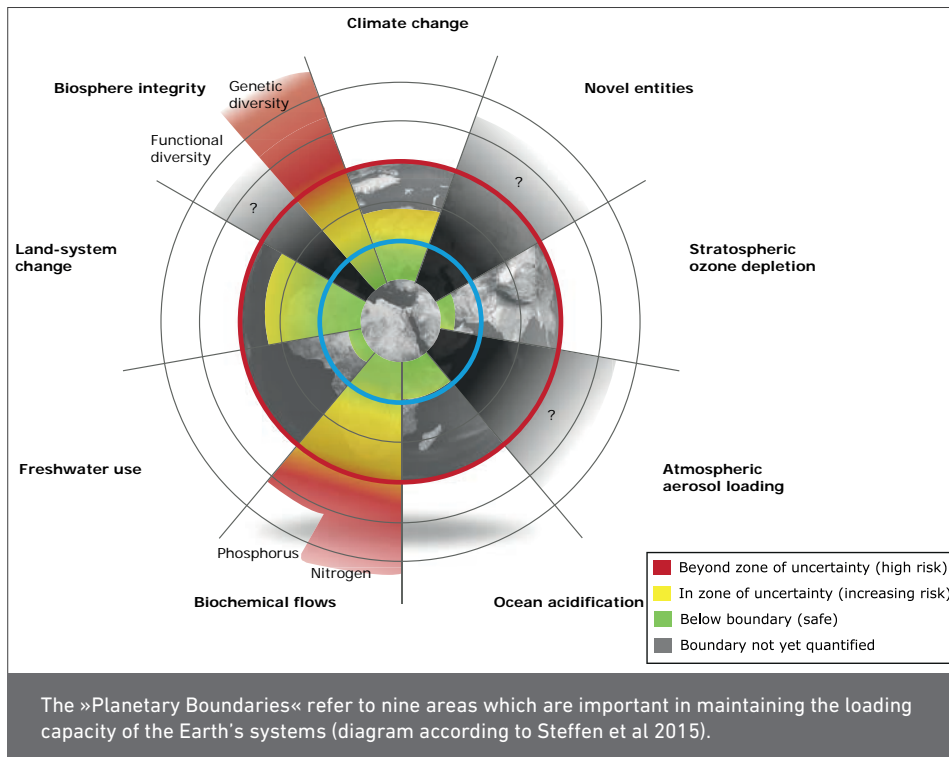
School 3.0 – teaching children about the energy transition (AZ 32847)

How can we improve the way we teach children about the energy transition in public schools? Given the timeliness of this subject in particular, the majority of teachers were not prepared to teach this issue in their teacher training. This is precisely where the Centre for Chemistry, which is based in Bensheim, Germany, has decided to start. They are working together with chemistry, physics, computer science and mathematics teachers as well as with experienced natural science educators, scientists and employees from relevant companies to develop skills-oriented teaching units on the topic of the energy transition. The units will be tested and directly implemented at schools in Hessen. The goal is to qualify teachers to teach the energy transition, and to motivate them to include the topic into their lessons on relevant subjects. Topics include organic electronics, fuel cells, wind energy and virtual power plants. The teaching units will be posted online and are also intended to offer insights into and ideas for possible career paths in these areas, as well as possible courses of study.



DBU – We promote innovations

The Deutsche Bundesstiftung Umwelt (DBU) supports innovative, exemplary and solution-oriented projects for the protection of the environment in accordance with the foundation's mission statement, with special consideration for the mid-sized business sphere. Funded projects should achieve sustainable effects in practice, provide impulses, and have a multiplier effect. It is important to the DBU to contribute, in particular, to solving current environmental problems which result from unsustainable economic practices and ways of life in our society. The DBU sees key challenges above all in climate change, biodiversity loss, the unsustainable use of resources, and harmful emissions. The funding subjects thus tie in with both current scientific findings on »planetary boundaries« and with the Sustainable Development Goals adopted by the UN. Especially with regard to biological diversity (biosphere integrity) and the disruption of the nutrient cycles of nitrogen and phosphorus (biochemical flows), the planetary boundaries have been far exceeded. Humanity has therefore moved a long way from any safe operating space, and is now exposed to a high risk of negative ecological, economic and social consequences. Mankind has also already moved into the danger zone in terms of land-system change and climate change.



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