



Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety



Five points on a nature-friendly 2050 energy transition

By 2050, we want our entire energy supply to come from renewable energy sources. This requires an unprecedented transformation of our economy and our energy system. This structural change cannot take place without impacts on people, nature and the landscape. Because of this, we must try to find forward-looking ways to accommodate these extensive changes to the landscape and to protect biodiversity. A holistically sustainable transformation of the energy system can only be achieved if it takes place in harmony with nature.

We cannot protect biodiversity without climate action. Unchecked climate change endangers not only humans, but the natural world as well. In Germany, the impacts of climate change are already a key endangerment factor for biodiversity, for example in high mountain ecosystems. This is why, where climate action and nature conservation intersect, we have to say: “This might be the way forward!” and not “Impossible!” Nature conservation and climate action are not in conflict – they can work together to achieve long-lasting, resilient ecological change.

German planning approval law ensures that nature conservation aspects, such as the impact on protected areas and on the conservation of specially protected species, are reviewed and taken into account before the development of installations for generating energy. The German government is putting a significant amount of funding into research on the various impacts renewable energies have on biodiversity and into development of solutions for potential conflicts. The Federal Environment Ministry (BMUB) initiated the centre of excellence for Protection of Nature and the Energy Transition (Kompetenzzentrum Naturschutz und Energiewende) to help ensure that this knowledge is put into proper use at local level. This also works against the instrumentalisation of nature conservation law as a legal obstacle.

Beyond these specific implementation steps, the preservation of biodiversity also has to be considered in tandem with the basic trajectory of the energy transition. The findings of the

Federal Agency for Nature Conservation's (BfN) research focus on nature conservation and renewable energy have provided initial indications highlighting five key elements for keeping the energy transition compatible with nature conservation:

1. Efficiency is an essential requirement

We must significantly reduce energy demand in connection with supplying electricity, transport and heating and we must use energy efficiently. Even if energy becomes cleaner and cleaner in future, we cannot afford to waste it. The wind and sun provide unlimited energy, but the options for setting up installations to harness them without encroaching on nature are limited.

Efficiency as a first priority is indispensable for the energy sector in reining in costs and smoothing the way for the conversion of the energy supply. It is also a key element in reducing impacts on the natural environment and landscape and in making the energy transition compatible with nature conservation. In deciding which investments will pay off in terms of reducing energy demand, these positive effects must be considered.

2. Generating renewable energy in and around buildings

Some energy generation methods, such as harvesting solar energy from rooftops and facades and using heat pumps or geothermal energy, conserve nature and the landscape because they take up little additional space. These methods are in close proximity to consumers and can help increase the diversity of actors involved in the energy transition.

Compared to free-standing installations, the energy yield per unit area of photovoltaic systems can be up to four times greater for rooftop installations, depending on sunlight. These methods can prevent additional pressures on the limited supply of land – freeing up space for nature conservation, agriculture and forestry. In planning climate-friendly buildings that are fit for the future, intentional thought must be given to bringing together measures to reduce energy consumption and measures to generate renewable energy.

3. Carefully expanding on and offshore wind farming, optimised to site

We will not be able to implement the 2050 energy transition without wind power. There are already a number of findings from research and experience that show how we can expand wind farming in a way that is compatible with environmental and nature conservation

requirements. This is a complex process that requires the ongoing, constructive involvement of all stakeholders at each individual site.

4. Using bioenergy potential in recovered material and waste efficiently

In future, biomass from agriculture will primarily be needed for food production. In a world without coal, oil and gas, biomass generated in agriculture or forestry will also increasingly be needed as a raw material in other economic sectors. Biomass produced solely for energy use, such as energy crops like “energy corn” or fast-growing tree species, competes for land with higher order uses. This is why biomass should only be used for energy at the end of its value chain, when it is recovered material or waste. This saves resources and preserves natural habitats.

5. Hydropower must be compatible with nature conservation and designed to withstand climate change

There are well known criteria for the environmentally friendly expansion of hydropower with fish ladders and passes. However, the energy potential of hydropower is already largely tapped out in Germany. The altered water supply in the wake of climate change will change hydropower. It is important to consider whether structural changes along waterways are justifiable from a nature conservation standpoint, given the sometimes low energy yields.

The points presented here are already components of the energy transition plan. From a nature conservation standpoint, it makes sense to prioritise these measures even more as the energy transition moves ahead. This is how we can make the energy transition compatible with nature conservation.

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