

Organisation

The project was commissioned by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and is being conducted by Wuppertal Institute's Research Group I, "Future Energy and Mobility Structures". The project benefits from the multi-disciplinary approach taken by the Wuppertal Institute and from the available expertise in a broad range of scientific working fields (including expertise of other research groups).

Due to the complexity of the integrated approach chosen for the project, additional expertise will be obtained through organising workshops, where experts from science, politics and industry will participate. The workshops will be organised and conducted by the Wuppertal Institute.

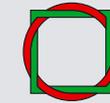
Project duration: 21 months, starting in October 2006.

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Wuppertal Institute
for Climate, Environment
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Research project

Driving forces and barriers

for long-term utilisation
of renewable energies —
An integrated approach

Research project
on behalf of the



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety



Aims and Background

The National Strategy for Sustainability of the German government aims at doubling energy and resource efficiency by 2020. Furthermore, targets for the share of renewable energies have been decided and concepts for climate goals have been developed (reduction of CO₂ emissions by 80 percent by 2050).

Strategies, policies and measures are of utmost relevance for the promotion of the use of renewables. The first aim of the project is to evaluate future prospects of renewables and to deliver in-depth analyses of the multitude of driving forces for further renewables dissemination.

What are driving forces?

Potential driving forces — factors that positively influence trends and developments — for the intensified use of renewable energies are (among others):

- security of energy supply
- nature conservation and climate protection
- long-term competitive energy supply
- local benefits
- job creation aspects
- potential for innovation and start-ups (creation of small and medium enterprises)
- technological impulses on global scale

But various barriers and obstacles hinder deeper integration of renewables into energy systems. Therefore the second aim of the project is to identify and evaluate possible effects that negatively influence market integration of renewable energies in detail.

Assessments of markets for certain technologies and their future development perspectives gain special attention in this regard. Technological break-throughs and other technologically driven developments in the fields of renewable energies as well as non-renewables are not the only drivers for creating markets. Demographic trends and other types of social change can influence markets as well. Another factor is climate change that can influence available potentials of renewable energies.

Work packages

Analysis of potential driving forces for further development of the use of renewable energies

Further integration of renewables into energy systems is in current discussions mostly justified by possible contributions to climate protection and to security of energy supply. But possible positive effects cover a far broader range. The work package focusses on two levels:

- 1) In-depth discussion of the effects of renewable energies on various aspects of social life, economy and others.
- 2) Presentation of these effects for broader public preception.

Renewable energies and international preception

Moving from the German to an international perspective, the work package focusses on the role and value that is attributed to renewables in other countries and geographical regions. Furthermore, identification of options to improve promotion of renewables on an international level plays a leading role. Players that can contribute to the promotion of renewables will be identified.

Renewable energies and dynamic developments

Dissemination of renewables is a long-term task. In this regard the goal of the work package is to find and discuss influencing factors for long-term dissemination dynamics. The following instruments will be used:

- Assessment and quantification of long-term, continuous changes that can influence the dissemination of the use of renewable energies.
- Assessment and quantification of processes that can influence the use of renewables very suddenly — be it positively or negatively. These so called tilting effects can influence either the use of renewables themselves or the surrounding economic, political, technological, energy systemic and social fields.

Forecasts of long-term changes are — by nature — characterised by large insecurities. It is therefore important to identify the determining factors that influence renewable energy utilisation positively or negatively. Identification will be accomplished by categorising these factors in terms of relevant time frames and occurrence probability. In a subsequent step, possible reaction patterns to undesirable developments will be discussed.

Design of informative literature

During the course of the project two brochures will be designed. They will display and discuss potential driving forces, using up-to-date design concepts.

Summary and Conclusions

The potential benefits of the intensified use of renewable energies, long-term developments and reaction patterns are presented in the summary in brief. Additionally, the necessary set of instruments (e. g. frame conditions for market introduction and market creation) for long-term robust use of renewables will be summarised.

