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'Lead Scenario' for 2009: renewable energy sources once again on the advance

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On the advance: energy from Sun, wind and company

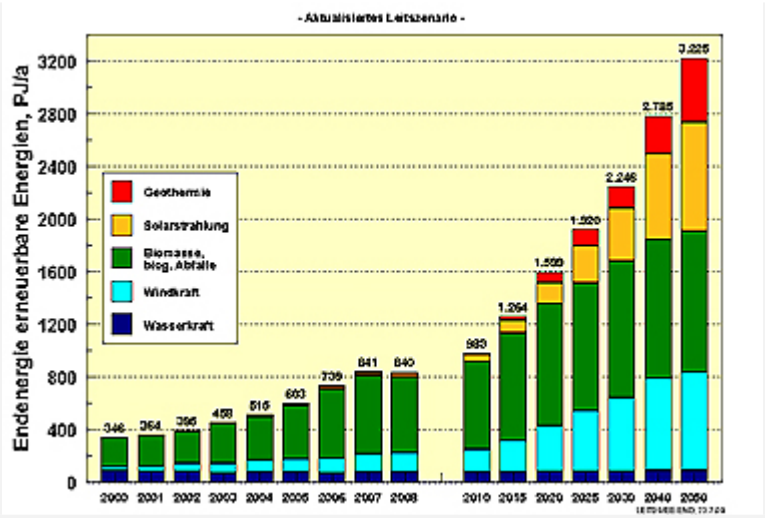
The scope for expansion of renewable energies may be greater than previously assumed

Energy from sun, wind, water, biomass and geothermal sources is capable of meeting over half of Germany's energy needs by the year 2050. Germany can cut its emission of greenhouse gases to about 20 percent of its 1990 emission levels, provided that renewable energies continue to be rolled out, and provided that more efficient use is made of the energy obtained from them. This was the verdict reached by 'Leitszenario 2009' ('Lead Scenario 2009'), a study conducted by the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR) together with the Institute for Solar Energy Supply Technology (Institut für Solare Energieversorgungstechnik; ISET) and the Engineering Bureau for New Energies (Ingenieurbüro für neue Energien; IfnE) as part of an ongoing research effort on behalf of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit; BMU).

Effective measures for cutting carbon dioxide emission levels

Within just a few years, renewables have become a substantial pillar of the energy delivery structure in Germany. In 2008, renewables were already contributing about 15 percent towards electricity consumption and 9.5 percent of total energy consumption.

In keeping with last year's 'Leitszenario 2008', this latest study demonstrates that the ambitious goal of cutting greenhouse gas emissions in Germany to about 20 percent of 1990 levels by the year 2050 is an achievable one. However, this is only possible if renewable energy sources are able to make a significant contribution towards this, and if the dynamic rate of expansion achieved over the last few years can be sustained. The 'Leitszenario 2009' study actually demonstrates that this expansion in the use of renewables is capable of progressing at an even faster rate than previously assumed. In the year 2020, according to this scenario, there is potential scope for renewables contributing as much as 35 percent towards electricity consumption, with the share it contributes towards total or 'end energy' consumption rising to about 20 percent. This means that the expansion targets enshrined in Germany's Renewable Energies Law (Erneuerbare-Energien-Gesetz; EEG) and in the latest EU Directive can all be achieved.



The contribution made by renewable energies

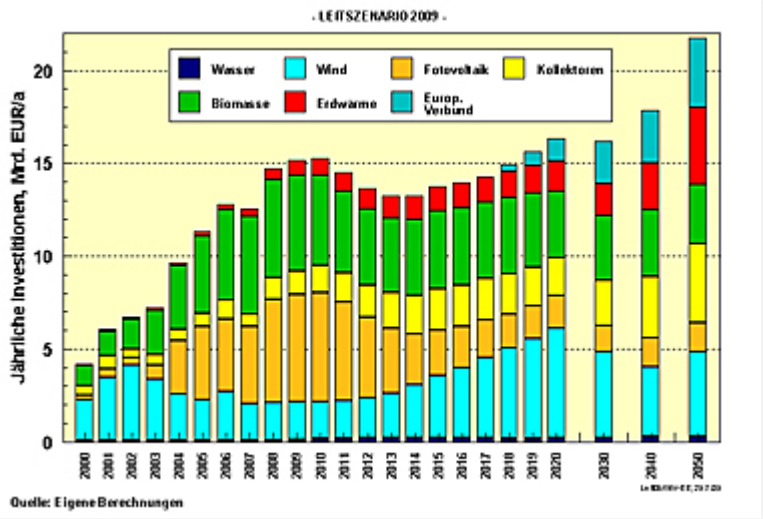
By 2050, the contribution made by renewable energies could be substantially above the 50 percent mark. According to this scenario projection, by that date, the electricity sector would be sourcing almost 84 percent of its power from renewables, making it virtually climate-neutral. By that time, renewables would be contributing 50 percent towards heating demand, and 30 percent towards overall energy supply.

Combined Heat and Power (CHP) and energy efficiency also have an important role to play

This study highlights other key areas for any effective reduction in greenhouse gases. These include a major expansion in Combined Heat and Power (CHP) and a substantial increase in energy efficiency in all areas of usage. If these prerequisites are met, Germany's consumption of power from primary energy sources could drop to 83 percent of its current level by 2020, and to 58 percent of today's level by 2050. By 2020, electricity consumption will drop by 10 percent. Renewables can, at any point in time, help to offset the gradual reduction in power sourced from nuclear power stations and, in some cases, can substantially outperform that target level.

In the near future, renewables are not going to be able to become a complete replacement for fossil fuels in the transport sector. Provided that vastly more efficient use is made of fuels, the increased use of bio-fuels will constitute an effective transitional strategy. In the longer term, electric vehicles powered by climate-neutral electricity, and by hydrogen also produced from climate-neutral electricity, will deliver climate-compatible mobility.

Increased benefits to the German economy



Annual investment figures for renewables

The further expansion of renewables proposed in 'Leitszenario 2009' is capable of delivering increased benefits to the German economy. A robust market is becoming established in Germany, representing annual investments of the order of 15 billion Euro. Between 2009 and 2020, investments totalling 175 billion Euro are anticipated in the production of renewable heat and power. This trend assures German companies of ongoing leadership in a wide range of technologies and will help in the further growth of the country's export markets.

The scientists from the DLR Institute of Technical Thermodynamics involved in this study have spent the last 30 years compiling and evaluating concepts for sustainable energy supply based on standalone technology analyses and on model-based calculations, extrapolating scenarios from these to illustrate a potential structure for the future. They analyse the energy provision options for the future on behalf of the German government, other governments, the European Commission and other clients. DLR has been conducting studies on behalf of the German Ministry for the Environment, Nature Conservation and Reactor Safety for these 'Lead Scenarios' since 2003.

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