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Global energy scenario shows that sustainable energy supply can be achieved

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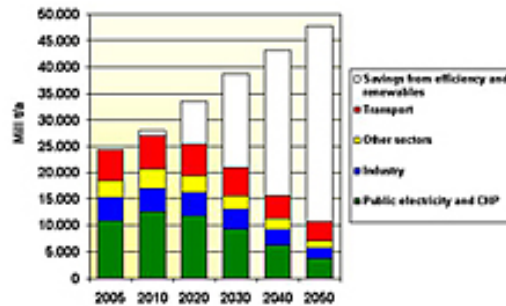
Consistently putting renewable energies to full use

DLR draws up energy report on behalf of Greenpeace International

A sustainable energy supply can be achieved, even under conditions of global economic growth - this is the outcome of the updated global energy scenario developed on behalf of Greenpeace International and the European Renewable Energy Council (EREC) by the Institute of Technical Thermodynamics (Institut für Technische Thermodynamik) of the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR) in cooperation with over 30 other scientists and institutes.

The global energy scenario - the so-called Energy [R]evolution Scenario - shows how global CO₂ emissions can be reduced from 30 billion tonnes per year today to about ten billion tonnes per year by 2050. This drastic reduction of greenhouse gas emissions is necessary to ensure that the rise in the global average temperature relative to the pre-industrial level does not exceed two degrees Celsius. The study shows that these goals can in fact be compatible with access to electricity for people around the world, a reliable and affordable supply of energy as well as global economic growth, as long as full use is made of all available options for efficient use of energy and for expansion of renewable energy.

The DLR Institute of Technical Thermodynamics has been developing and analysing concepts for sustainable energy supply on the basis of case-by-case technology analysis and scenario modelling for over 30 years already. DLR's energy experts also analyse energy supply for the future on behalf of the German federal government, several German federal state governments and the European Commission, amongst others.



CO2 savings potential by 2050

2050: share of renewable energies to over 50%

Even when the still rapidly growing energy consumption of countries like China, India and Brazil is taken into account, the increase in global energy demand can be slowed down considerably through efficiency measures. The scenario shows that the increase in energy consumption can be limited to about 120 percent of current demand by 2030. After 2030, global energy demand can be reduced.

In 2050, over half of the world's primary energy needs can be met by renewable energies (up from about 13 percent at present). Energy generation is at the forefront of this development: In 2050, a global average of almost 80 percent of electrical power can come from renewable energies, while the share of renewable energies in heat production is expected to rise to about 70 percent by that time. With regard to transport, the scenario foresees that at first the use of biofuels, but from 2020 an increased share of electric vehicles will contribute to substitution of fossil fuels.

Renewable energies lead to cost reductions

The currently (in part) still high cost of renewable energies constitutes an important barrier to a quick modification of energy systems. As their share rises in the medium and long term, however, there will be significant cost reductions in comparison with fossil energy production. If current trends are allowed to continue (the "business as usual" scenario), the cost of global energy supply will rise from about 1 700 billion US dollars per year today to over 8 000 US dollars in 2050, due to unchecked growth of the demand for energy, rising commodity prices and CO2 emission costs. In the Energy [R]evolution Scenario, however, the climate protection goals are achieved while keeping energy supply costs in 2050 more than a third lower than in the "business as usual" scenario.

Increased demand for energy in China and India taken into account

The Energy [R]evolution Report of Greenpeace and EREC, now in its second edition, is based on energy scenarios developed by the DLR Institute of Technical Thermodynamics in cooperation with Ecofys (a renewable energy consultancy), the DLR Institute of Vehicle Concepts (DLR-Institut für Fahrzeugkonzepte), Greenpeace International and EREC. The Department of System Analysis and Technology Assessment (Abteilung Systemanalyse und Technikbewertung) of the Institute of Technical Thermodynamics shows the ways in which by 2050 the global demand for energy can be met while taking into account climate protection goals. A host of factors are included in the analysis, including macroeconomic indicators, the evolution of demand and supply as well as the technological potential of renewable energies. Compared to the first edition, published in January 2007, the current version of the report gives special consideration to the sharp rise in demand for energy in countries such as China and India. In addition to this, it gives more attention to the potential for savings in the transport sector.

The technology is already available

The report shows that the technology required to achieve climate protection goals are in principle already available. Decisive political action is now urgently required in order to create the national and international political and social framework for the necessary transformation process so that the discrepancy between current political goals on the one hand and actual trends on the other can quickly be overcome.

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