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Renewable energies and energy efficiency: Key role in climate protection

Potentials of energy efficiency and renewable energies in international energy underestimated

International energy scenarios have underestimated the potential of energy efficiency and renewable energies. This is the outcome of research by a consortium within the German Aerospace Center (DLR) done on behalf of the Federal Environment Agency (UBA) and has been published in the *Role and Potential of Renewable Energy and Energy Efficiency for Global Energy Supply* study. The study analyses global energy scenarios and global potential analyses on the energy efficiency and use of renewable energies.

The analysis reveals that the potentials of energy efficiency as well as the technologies to use renewable energies in the energy scenarios must be exploited in order to comply with global CO₂ emissions reduction targets. "The results of the report underscore the fact that considerable potentials worldwide to use renewable energies, to increase energy efficiency, and to effect change in consumer behaviour have not yet been exploited", said Klaus Müschen, Head of the Climate Protection and Energy Unit at UBA. "Ultimately, the projected technical potential to use renewable energies is twenty times greater than current global final energy demand."

Technologies to use renewable energies and energy efficiency measures must be further developed to exploit these potentials; moreover, for overcoming economic, infrastructural and political difficulties. "The market has thus far failed, and other constraints have hampered their successful introduction on the market. More than half the efficiency measures analysed are implementable and are economically viable. Measures must lift barriers to the market and thus promote an increase in energy efficiency", continued Klaus Müschen.

The greatest technical potential worldwide for generating electricity lies in solar technologies such as Concentrating Solar Thermal Power Plants (CSP) and photovoltaics (PV), followed by onshore wind energy and ocean energy. It is expected that great cuts in the costs of generating electricity can be made in the next twenty years for nearly all technologies applied to use renewable energies, with the exception of hydropower. Assuming that costs for fossil fuels and CO₂ emissions will rise steadily, most of the technologies used for the generation of regenerative electricity will be competitive by the year 2030.

"The scenarios up to present often do not reveal the constraints placed on marketing affordable technologies for the use of renewable energies", said Klaus Müschen. In order to

boost their validity future scenario analyses should seek to document their basic assumptions and limitations more comprehensively and more transparently. The researchers themselves seek to provide the basis for this as they take regionally differentiated stock of all renewable energy resources in a follow-up research project scheduled to end in late 2010.

The *Role and Potential of Renewable Energy and Energy Efficiency for Global Energy Supply* study is available for download here: http://www.umweltbundesamt.de/uba-info-medien/mysql_medien.php?anfrage=Kennummer&Suchwort=3768. There is an executive summary available in both German and English.

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