

MEGHÍVÓ

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ENERGY PERSPECTIVES FOR GERMANY AND EUROPE:

A RESEARCHER'S VIEW

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Abstract

In Germany, researchers, politicians, businesses, and society are facing the challenge of the century: implementing the 'Energiewende', or energy turnaround, that has been adopted by the federal government. By 2050, Germany's primary energy consumption is to be half of what it was in 2008. Renewable energies are to reach a share of at least 60 per cent of the country's gross energy consumption and they are to cover 80 per cent of electricity consumption. Greenhouse gas emissions are to decrease by 80 per cent from 1990 levels. If Germany is to realise these goals, it has to restructure its energy system in the long term. This requires new technologies for using primary energies and for converting, storing, and distributing them.

In line with the German Energy Research Programme, entitled 'Research for an environmentally sound, reliable, and affordable energy supply', KIT performs national provident research in the six fields: (1) Energy Efficiency, Materials and Resources - for restructuring energy supplies; (2) Renewable Energies - for future-oriented energy supplies; (3) Storage Systems and Cross-linked Infrastructures - for the renewable energy age; (4) Technology, Innovation and Society - transformation processes and analyses of the energy system; (5) Nuclear Waste Management and Safety; and (6) Nuclear Fusion - as a long-term option.

The talk discusses the challenges of the German Energiewende both in a national and a European context, gives some successful examples - from the fields described above - on how coordinated research results help to realise a new energy supply system. Finally, requirements and next steps are formulated which take into account the complex system context and the political and societal issues involved.

Brief CV:

Joachim Knebel is the Head of Division (BL3) at KIT. He is responsible for the two KIT Faculties Mechanical Engineering and Electrical Engineering with a total of 37 institutes, and the three Research Programs 'Storage and Cross-linked Infrastructures', 'Fusion Research' and 'Nuclear Waste Disposal and Safety'.

Within the German Helmholtz Association of National Research Centres, he is Spokesperson for the Nuclear Waste Disposal and Safety Program and for the Cross-Program Activity on Electromobility. Joachim Knebel has a Ph.D. in mechanical engineering, he holds a Prof. h.c. from Saint Petersburg State University (SPbSU) and has authored or co-authored 160+ scientific publications and has given over 110 invited lectures at conferences, public hearings, press events, and specialist meetings world-wide.

In 2011, Joachim Knebel was awarded the European Science Culture Award of the European Foundation for Culture PRO EUROPA for merits in Partitioning & Transmutation Research.

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