

## SMART ENERGY MADE IN GERMANY: FIRST RESULTS OF THE E-ENERGY PROGRAMME

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### ABSTRACT

*Affordable and reliable energy supply is essential for our industrial growth. In the course of the basic energy reform in Germany, the structure of the supply system will undergo far-reaching changes in the coming decades. For example, the number of small and decentralised producers with highly volatile, weather-dependent power generation will increase. These developments pose a great challenge for grid operators.*

*Information and communication technologies (ICT) can make a decisive contribution here. With their help we can better balance the growing power supply from renewable and decentralised energy sources with demand. Communications technology plays a major role both in grid expansion and the conversion of the whole power supply system. Whether we call it smart, active or intelligent grid, we are talking about systematically maximising the efficiency of electric power supply. This ranges from power generation to storage, transport, distribution up to efficient use.*

*In Germany, this corner stones of an Internet of Energies are being developed under the auspices of "E-Energy: ICT-based Energy System of the Future", a 140 mio. EUR initiative of the Federal Government. From September 2008 – December 2012 in six model regions, industrial and scientific syndicates are investigating and testing the essential elements of an intelligent energy supply. The programme has been set up as an interministerial partnership of the Federal Ministry of Economics and Technology (BMWi) with the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).*

*Expected results from E-Energy are architecture models, technical experience and a good base for future changes in the regulatory framework. E-Energy consortia together with an ancillary research group work on technical harmonization of power generation, grid load and electricity consumption as well as new electronic markets and previously unknown market roles. With methods developed and tested in E-Energy costs of grid repowering and maintenance can be reduced and supply security increased while more renewable energy sources can be exploited.*

*"E-Energy" Ancillary Research*

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## Ludwig Karg

born 1956

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| <b>1981</b>       | graduated with a diploma (Dipl. Inf. univ.) in Computer Sciences at the Technical University of Munich   |
| <b>1981-1983</b>  | Systems and Software Engineering in the fields of space missions and monetary systems  |
| <b>1983-1992</b>  | managing, training and consultancy positions in Intel Corp. for multimedia, realtime and network products  |
| <b>since 1993</b> | managing director (since 2007 owner) of B.A.U.M. Consult GmbH München / Berlin; development of various research and implementation projects on sustainability and renewable energy usage in enterprises, municipalities and regions.   |
| <b>since 2005</b> | chairman of INEM (International Network of Environmental Management).  |
| <b>since 2008</b> | head of a consortium of researchers, knowledge managers and communication specialists to manage and support the German E-Energy and ICT for electric mobility programs (see <a href="http://www.e-energy.de">www.e-energy.de</a> and <a href="http://www.ikt-em.de">www.ikt-em.de</a> ). |



or

Ludwig Karg graduated with a master (Dipl. Inf. univ.) in Computer Sciences at the Technical University of Munich (1981). He gained practical experience in software engineering and held German and international positions in Intel Corp. for multimedia and network products. He is Managing Director of B.A.U.M. Consult GmbH (since 1993) and Chairman of INEM (International Network of Environmental Management). Mr. Karg led various research and development projects on sustainability and renewable energy usage in enterprises, municipalities and regions. Since 2008 Mr. Karg heads a consortium of researchers, knowledge managers and communication specialists to manage and support the German E-Energy and ICT for electric mobility programs.