

Doing Laundry When The Wind Blows – Results Of A Survey In Households About Potentials Of Load Management In The German Harz Region

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I) Introduction

Current discussions of how an energy sustainable development can be realised in our society usually deal with the topics of efficiency and sufficiency as well as strategies of consistency: How could energy supply from environmentally friendly technologies be assured in the long run? Beside the development of appliances that are more energy-efficient, another question of how to further expand renewable energy sources and how to use the resulting energy is in the focus. In this context a problem becomes apparent. Renewable energy sources cannot be adapted to human needs. A lot of energy will be available if the wind blows or the sun shines. As a result there are problems of load management that require a technical solution. That solution alone will not assure an energy sustainable development as the success of technical approaches depends on end users' acceptance and their active implementation of that approaches to their every day life.

The academic research group of environmental psychology that was part of national and international projects and during more than 15 years gained a lot of experience from research and praxis in the fields of renewable energies, characteristics of energy usage in private households and sustainable usage of energy, respectively, put its main focus on that topic. An essential finding was that in terms of technical solutions end users always have to be concerned and involved. Being experts of their environment, they can make important contributions to the development of appropriate technical solutions. In addition to that the possibility of participating could have a positive effect on the acceptance.

II) The Survey in Households about Potentials of Load Management in the context of the RegModHarz Project

In the context of a project called "Regenerative Modellregion Harz" (RegModHarz), possibilities of a virtual power station that is able to adjust energy supply and energy demand are being investigated. The project's aim is to technically and economically tap and embed renewable energies in every day life. In this context the academic research group of environmental psychology in cooperation with the ISET Kassel examines the potentials of load management in the model region of Harz. The central challenge is to identify the circumstances under which people are willing to adapt their daily behaviour in order to use renewable energies more efficiently. In order to identify actual potentials, the concrete task is to figure out which kind of technical appliances is being used in the households and to what extent people are willing to adapt their usage of that appliances, e.g. to do the laundry at that time renewable energy actually is available. The usage of electric cars as storage of renewable energies is being contemplated as well.

III) Method

The potentials of load management will be identified during a questionnaire survey with a representative sample in August/September 2009. Information on the kind of technical equipment that is available in the households of the model region, on the habits of usage of that equipment, and on what extent renewable energy sources are being used already will be collected. Additionally, the questionnaire covers fundamental fields of a potential use of electric cars. The essential technical requirements as well as the interviewees' attitudes regarding possible advantages and disadvantages of electric cars will be collected. Being other possible parameters for the willingness to change the daily behaviour in order to use renewable energies more efficiently, the acceptance of renewable energies and the energy awareness (energy-relevant behaviour, knowledge and affective evaluation) are being covered.

IV) Results

The results of the questionnaire survey will allow to display the current situation in the households of the administrative district Harz concerning energy consumption and energy behaviour. Furthermore, the information on technical data and the willingness to change one's behaviour will allow to identify potentials and obstacles for the further implementation of renewable energies.