

International Energy Systems in Transition
- Perspectives from Science and Industry -
The 15th IERE General Meeting & German Forum
Abstract Format

Title: Quality standards for policy advice based on energy scenarios

Prof. Dr. Felix Höffler
Director, Institute of Energy Economics, University of Cologne, Germany

Keywords: *quality standards, policy advice, energy scenarios, energy modelling*

Abstract

Energy scenarios are an important element of scientific policy advice. They are published in scientific studies commissioned by ministries, companies, and other organizations. The scenarios are used to identify possible future developments of energy systems, to draw conclusions about the adequacy of policy measures or to underpin strategic decisions in the private economy. Since these studies play an important role in political decision making and in the public discussion about the transformation of the energy system, they should fulfil high quality standards. However, in practice they seldom do and that casts doubts on their soundness and legitimacy.

We try to address this problem in an analytical and constructive way. We formulate three fundamental quality standards for policy advice based on energy scenarios, analyze the reasons for the occurring deficits and formulate options to improve the established practice: The standard of *scientific validity* is especially challenged by the large uncertainties involved in the long-term modelling of the energy system. The systematic analysis of sensitivities and model uncertainties scientifically necessary in that matter are up to now hardly conducted in policy advice projects. The standard of *unbiasedness* is in practice not fully fulfilled because most studies are not clear about the influence the client has on the results, e. g. by setting certain assumptions. *Transparency* is a key standard. Only if the assumptions, models and the process of generating the scenarios including the client's role are transparent, a study's validity and unbiasedness can be controlled. But, meeting this standard bears a challenge on its own: Energy scenario studies typically address experts and lay persons at the same time. Therefore, transparency must be realized in an addressee-specific way: We recommend all addresses of a study should be able to *trace* its argumentation, general approach and – most importantly – the limitations of the conclusions. Additionally experts should be able to *reproduce* the study's numerical results. That especially requires the transparency of data and models which in turn requires a change in the established mode of financing policy advice based on energy modelling.

We believe that the necessary improvements of the established practice can only be achieved in a close cooperation of clients – especially public – and the scientific community.