

Social and economic uncertainties and thresholds for the diffusion and adoption of renewable energy systems

(Main supervisor: Alfred Posch)

There is broad consensus that Austria will need a transition from fossil fuel based energy systems towards renewable energy in order to mitigate climate change and to lower the dependence on the global energy market, and thereby also lower its vulnerability to unexpected volatilities in energy markets. This transition does not involve only technological changes but also changes in the whole socio-technical configuration of energy systems, including the spatial, temporal, and institutional structure and patterns of energy production and consumption, financial rules, regulations and policies, infrastructure, and culture and symbolic meaning, perceived threats and scope of action, etc.

The main research objectives are to, first, develop a better understanding of the sociotechnical factors that lead to technological transitions towards renewable energy systems, for example to electricity generation via photovoltaic, and, second, to use this improved understanding to define and assess possible strategies for different actors to support innovations at different scales.

The theoretical bases for developing a more comprehensive understanding of uncertainties and thresholds for the diffusion and adoption of renewable energy systems are transition and innovation theory, particularly market diffusion and adoption theories, and also normative and behavioral decision theories. The methodology includes: literature research, qualitative and quantitative methods of empirical social research (interviews, focus groups, survey, and statistical data analysis), multi-criteria analysis, technology-portfolio-analysis, and stakeholder dialogue, transdisciplinary processes. Additionally, a transdisciplinary research design will lead to a knowledge production process, where practitioners and academics intensely interact during the research projects and in this way generate a mutual learning process between them. The result of an integrated process of knowledge production amongst scientists and practitioners is knowledge that is more socially robust.

[The project contributes to answering the DK research question 3](#)