REINER LEMOINE INSTITUT

REINER LEMOINE STIFTUNG

Übersichtsstudie zur EnergieSystemWende

Systemische Hemmnisse der Energiewende und Lösungsansätze

Summary

In this study, obstacles to the energy transition in the German energy system and suitable solutions are identified. The aim of the study is to provide policy makers an overview of the possible pathways towards a renewable energy system. It must be accepted that we are facing a stalling energy revolution and that profound changes in the energy system are unavoidable - and a window of opportunity. The study is based on a literature review and the evaluation of previous studies on the transformation of the German energy system. Four dimensions surrounding the energy system - environment, technology, economy, and society - are considered.

The results stress that a new approach to shaping the energy system transformation is necessary in order to achieve the climate goals of the German Federal Government. The current approach to the energy system transformation is largely based on the integration of renewable energies into the existing conventional system. However, a comparison of the energy system in the 20th and the 21st century reveals fundamental shifts in the stakeholder landscape, generation, consumption and grid structures, as well as an increase in the complexity of the energy system. Highlighting these differences may help to understand current regulations and structures as well as how they came into being and question their meaningfulness for future developments.

-> Chapter 1 „Das Energiesystem im Wandel“

The current approaches to the integration of renewable energy in the conventional energy system are no longer sufficient, leading to a need for a paradigm shift. Fundamental regulatory and structural changes are required to shape the change in the energy system. On the one hand, subsidies for the conventional system must be reduced and a holistic view of costs is essential to ensure fair competition between the various generation technologies. This includes the introduction of effective pricing of externalities in all sectors as well as compliance with the polluter pays principle and distributive justice.

On the other hand, a grid-compatible usage of new technologies such as storage, virtual power plants, and smart grids must be made possible by a new regulatory framework. In addition, approaches for new market structures for the use of increasingly decentralized and volatile generation must be implemented consistently, replacing the old central market structures.

In addition, user acceptance and participation of society and a social design of the energy system play a decisive role, so that society can be included in the energy system transition as more than a mere financial tool.

-> Chapter 2 „Die Wende im Energiesystem: Hemmnisse und Lösungsansätze“

The course towards this path can be set by policy-makers. Thinking patterns should be shaped by the requirements of the new energy system, not by the existing system which must be overcome. Instead of small-scale corrections and integration efforts within the structure and resulting limits of the old energy system, a courageous jolt is needed that sets up a new framework for the energy market in which the renewable energy world can develop. In order to achieve the climate targets, the whole energy system must be part of the transition.

-> Chapter 3 „Rahmenbedingungen für die Zukunft“