

Call for Abstracts: „Energy futures: to know, to advise and to shape“

TATuP-special topic in issue 3/2019

Deadline for your abstract: March 19, 2019

With the aim to reduce greenhouse gas emissions close to zero, the transformation of the energy system on national and global levels is well established on the agendas of scientific research and political decision-making. Main driving forces for reshaping the energy system are anthropogenic global warming and climate change.

The German *Energiewende* (“energy transition”) shows in particular the socio-technical character of energy systems. On the one hand, ambitious primarily technical targets characterize the *Energiewende*, such as phasing out nuclear energy, increasing considerably the share of renewable energies and reducing primary energy consumption levels. On the other hand, the transformation cannot be seen exclusively from a techno-economic perspective. Without popular support and a minimum of acceptance, the energy transition will not be feasible, since social backing is central in pluralistic-democratic societies and individual decision-making. Also, consumer behaviour will essentially determine the transformation success. Reshaping the energy system, in addition, is construction work in ongoing processes and needs to be done with maintaining fully functional and powerful system performances. While the goals of the energy transitions have already been specified, the paths and roads of reaching them remain manifold and numerous, they represent a challenge for the scientific community as well as for others.

The historical background of the *Energiewende* and present debates on its future pathways make clear that potential transformation pathways need to be reconciled within science, business and industry, policy and society. Conceptualizing, planning and implementing such long-term processes is characterized by high levels of complexities and uncertainties. From an ex-ante perspective, this leads to explicitly very different future pathways. In a democratic society, the road to be taken needs to be generally accepted or tolerated by the majority of the public. For the science community, the question is how to produce relevant knowledge for future pathways, and how to feed this information into public discourses.

The role of science and research is to help identify and specify future pathways of the energy transition in order to support social and political decision-makers and the public at large with knowledge (and non-knowledge) for successfully transforming the energy system. The complexity of the task makes it necessary to integrate different perspectives, disciplines and methods. This TaTuP special topic will focus on the following aspects of energy futures:

1. *Knowledge about energy futures:* As a socio-technical system with high levels of complexity, uncertainty and ambivalence the energy system shows a multitude of potential socio-political and techno-economic future pathways. These pathways are not necessarily compatible with one another. Against this background, interdisciplinary challenges become obvious on how to identify, characterize and differentiate these pathways.

2. *Advice on energy futures:* Science addresses the inevitably open, multi-tracked and partially predictable character of socio-technical energy futures through notions of contingency, uncertainty and non-knowledge. Thus, scientific knowledge about the future ranges between assessments that are deemed valid and statements of extreme uncertainty. Against this background, central challenges of reflection lie, in particular, in methodological and content-related developments that identify and investigate aspects such as security and insecurity as well as knowledge and non-knowledge, and point out ways to communicate these.
3. *Shaping energy future knowledge:* actors engaged in shaping the transformation rely on scientific advice and implementation guidelines in order to manage the highly complex and multi-level-based process. (Political) decision-makers require and request from science advisory services, such as designing assistance on future options for actions, prioritisation of options and of promising implementation procedures. From that end, there remain challenges how to transfer and disseminate relevant scientific energy future knowledge towards decision-makers and the public.

Expected contributions

From the angle of inter- and transdisciplinary future research, technology impact assessment and system analysis we request empirical and/or conceptual contributions which focus on new and innovative work with regards to the scientific study of energy futures. The contributions shall consider one or more of the following aspects:

Knowledge of energy futures:

- How to identify, characterize and differentiate methodologically promising transformation pathways from an interdisciplinary perspective providing also ex-ante impact assessment?
- How to consider, in the course of time, changing framework conditions, cause-impact chains and influencing factors in future knowledge?

Advice on energy futures:

- How to consider method-related and content related uncertainties and non-knowledge in studies on energy futures?
- Which assessment and evaluation approaches are suitable for different transformation pathways?
- Which consequences would have (realised) energy futures for specific social groups, and how to evaluate these consequences concerning acceptability and desirability?

Shaping energy future knowledge:

- Which requirements are needed for adequately designing representations, as well as advice and implementation instruction to meet complexity? Moreover, how to adequately consider and communicate uncertainty related to energy futures?
- How to deal with complex and conflict-laden decision-making and steering processes within sub-systems in a multi-level governance environment?
- Which combinations of (policy) interventions and measurements are most suitable to realize the identified pathways? In addition, how to consider aspects of a long-term governance framework which is needed for the transformation?

Guest editors of this TATuP special topic

Dirk Scheer, Witold Roger Poganietz and Lisa Nabitz (all ITAS, KIT)

Submissions

Please send your abstract by email to redaktion@tatup.de by **19 March 2019** at the very latest. Please respect the following directions: max. 3000 characters incl. blanks; the editorial office will correspond with the author submitting the abstract; name all authors with full names, email addresses and institutional affiliations.

Schedule

19 March 2019: deadline for submitting your abstract.

Early April 2019: decisions on inviting authors to submit a full manuscript.

Early July 2019: deadline for submitting your full manuscript.

July/August 2019: peer review process.

Early September 2019: feedback to the authors from the reviewers and editors of the special issue.

End of September 2019: deadline for first round of authors' revisions.

Mid October 2019: deadline for second round of authors' revisions (if necessary).

December 2019: Publication in TATuP issue 3/2019.