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## Session A5

Room: Brookfield, Wednesday 3.15- 6pm

### **Socio-technical transitions of energy and transport infrastructures: Co-evolution and complexity as challenges for TA**

Jens Schippl, Christian Büscher

- Introduction: Socio-technical transitions of energy and transport infrastructures: Co-evolution and complexity as challenges for TA (*Jens Schippl, ITAS/KIT, Germany*)
- Citizens' view on renewable energy technologies – insights into the complexity of the energy transition in rural areas (*Christine Rösch, Daniel Ketzer, Nora Weinberger, ITAS/KIT, Germany*)
- UK fuel and transport technology: Socio-technical transition or lock-in? (*Les Levidow, Open University, UK*)
- From (co-)evolution to synchrony-a reformulation of TIS according to the manifold shapes of technologies and the time qualities of functions (*Ulrich Dewald, ITAS/KIT, Germany*)
- Technology Assessment Concepts for Interdisciplinary Research on Infrastructures (*Christian Büscher, ITAS/KIT, Germany*)
- Open Discussion about the topics of the session

This session will address the challenge for TA to deal with the complexity of large scale infrastructural transitions in the energy and in the transport system. In both sectors, a broad range of innovative technologies with a high transformative potential are already commercialized or at least emerging. But infrastructures are socio-technical systems. It is widely acknowledged that not only technologies, but a much broader, wider perspective is needed to understand, anticipate, assess and affect the course of transitions in complex infrastructure system. However, already rather traditional, technical-economical conceptualizations or models of infrastructures take into account a variety of rather different factors. Applying a socio-technical perspective and assuming a co-evolution between technical and societal factors, between various innovations, process of institutional change and dynamics in behavioural patterns, appears to add immensely to this complexity. Several concepts or theories try to address the co-evolutionary dynamics in infrastructural transitions, such as the so-called multi-level perspective (MLP), the idea of technical innovation system (TIS), the concept of large scale technical systems (LTS) or also actor network theory (ANT). Further approaches are emerging, for example the idea of understanding socio-technical system as a socio-technical problem that can be related to three different but interrelated dimensions: structure, institution and operation. In the field of scenario studies, the idea of adding a socio-economic context to the traditional technical-economical scenarios has recently gained on importance, with the help of the so-called cross-impact method. Story-and simulation approach follow a more simple approach, by adding societal context in form of storylines based on intuitive logics. Whilst all this approaches are more or less established in their respective field and have their communities, it usually still is a kind of challenge to use them in the TA context, in an explicit ex-ante perspective, for the anticipation of future processes of change. In this session we want to deal with the question of how to deal with co-evolutionary dynamics in TA processes, without getting to complex on the one hand, and getting to simplistic on the other hand? Ideas, concept, methods, practical examples, case studies related to the policy-oriented anticipation of socio-technical dynamics are welcome in his session. What are example or best practices for an appropriate degree in complexity in transition-related TA?