

Routledge Studies in Energy Transitions

ENERGY TRANSITIONS AND SOCIAL PSYCHOLOGY

A SOCIOTECHNICAL PERSPECTIVE

Paul Upham, Paula Bögel
and Katinka Johansen



“Current discussions about transitions are often dominated by techno-economic perspectives that obsess over elements like carbon and cost. This book takes a refreshing departure from that paradigm, and it explores the cognitive, psychological and behavioural elements underlying those very same transitions. It underscores that if we truly want a more sustainable future, we need to change not only the technologies we build and the market mechanisms we design, but how we *think* about ourselves, society, and the sociotechnical systems embedded between them all.”

Benjamin K. Sovacool, *Professor of Energy Policy at the Science Policy Research Unit (SPRU) at the School of Business, Management, and Economics, University of Sussex, UK*

“Transition studies and (environmental and social) psychology have strongly contributed to our understanding of sustainability transitions. However, and surprisingly, the streams of literature have so far developed in relatively unconnected ways. I thus consider this book a valuable addition to the literature.”

Elisabeth Dütschke, *Senior Scientist at Fraunhofer Institute for Systems and Innovation Research (ISI), Germany*

“This timely book is a must-read for all transition scholars interested in studying agency in sustainability transitions. It is also a welcome invitation for a greater engagement of social psychologists in studying the role of individuals within larger socio-technical transition processes towards sustainability. May it inspire new interdisciplinary research leading to an enhanced understanding of how to accelerate sustainability transitions in sectors such as energy, mobility or agro-food.”

Karoline Rogge, *Senior Lecturer at the Science Policy Research Unit (SPRU) and Co-Director of the Sussex Energy Group, University of Sussex, UK, and Senior Researcher, Fraunhofer ISI, Germany*

“This is an important book for social scientists and others concerned with sociotechnical transitions. The authors have identified and explored a hugely significant aspect of energy transitions and energy technology diffusion, acceptance and use: the connection between individual-level psychology and sociotechnical processes. The message is very relevant: social psychology is not only important to sociotechnical transitions in the context of energy supply and use, but that the differences in analytic levels are bridgeable.”

Christian Oltra, *PhD, Senior Researcher at the Centro de Investigación Socio-Técnica, CIEMAT Barcelona*



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Energy Transitions and Social Psychology

This book explains how social psychological concepts can be closely integrated with sociotechnical perspectives of energy transitions. It shows the value of actor-centred analysis that acknowledges the role of individual-level processes within their wider contexts of energy supply and use. In this way, the book connects social psychological and sociological frames of analysis, preserving the value of both, to provide multi-level, analytically extended accounts of energy transitions processes.

Sociotechnical thinking is about the interactions of people and technology, including the rules, regulations and institutions involved. Such perspectives help to identify the many forms of path dependency that can make change difficult. Human behaviour plays a strong role in maintaining these path dependencies, but it can also introduce change. This book advocates a deliberately interdisciplinary research agenda that recognises the value of social psychological perspectives when seeking to create new pathways for energy supply and use. At the same time, it also demonstrates the value of sociotechnical perspectives for energy-related social psychology.

Energy Transitions and Social Psychology will be of great interest to students and scholars of energy transitions, environmental and energy psychology, sustainable development and innovation studies, as well as students and scholars of environment and energy more generally.

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Routledge Studies in Energy Transitions

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Author biographies

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Katinka Johansen holds a PhD in social psychology and an MSc in social anthropology, with research interests across energy transitions, environmental governance and research design. Her PhD focuses on public perceptions of renewable energy technologies, specifically offshore wind energy technologies, and it touches upon public, political and environmental perspectives in that regard. Her professional toolkit comprises both qualitative, quantitative and mixed methods research approaches, and she has conducted fieldwork in Bolivia, Northern Uganda and Denmark.

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Preface

A book about the psychology of energy transitions, particularly sociotechnical sustainability transitions, in the mode that has coalesced around Frank Geels' (2002) multi-level perspective (MLP), needs some explanation. This is particularly because this book is not – as we reiterate in the introduction – about simply showing the *relevance* of psychology for energy transitions. Rather, the book is also about how human behaviour- and agency-related social science perspectives with different underlying ontologies may be *brought together more closely* at a theoretical level, and it is about the value of doing so.

Outside of academia, an emphasis on theoretical integration may seem abstruse and somewhat irrelevant. However, while the sociotechnical approach to sustainability transitions thinking has grown in extent and influence, disciplinary specialisation has (we think) left the psychology of the actors involved under-examined. This book is intended in part as a response to this, specifically in the context of energy transitions, although with wider relevance. The book is equally a response to our frustration with social psychological analysis of energy-related psychology that gives too little attention to sociotechnical context. Workable solutions to increasingly pressing sustainability and, specifically, energy problems need to address interrelated phenomena in coherent, reinforcing ways. This requires different types of knowledge and understanding and as such is starkly at odds with academic specialisation, despite the latter having its own value.

The book coheres ideas that we have been developing, with colleagues, for several years. It is intended to both set energy-related social psychology in the wider context that sociotechnical sustainability transitions offer, and to draw attention to the value of social psychology for the sustainability transitions literature. We hope to stimulate some thought on these matters – whether or not you agree with what we are doing, or how we are doing it. We are well aware that the book only begins to address the contribution that psychology can make to understanding individual-level processes in energy transitions, and that there are many more psychological perspectives that can be drawn upon that

we have not had the time to use here. Hopefully, there will be a lot more such work in the years to come.

Paul Upham, Paula Bögel and Katinka Johansen

Reference

Geels, F. W. 2002. "Technological transitions as evolutionary reconfiguration processes: A multi-level perspective and a case-study". *Research Policy* 31:1257–74.

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This book draws on a programme of energy social science undertaken over several years, which we reference throughout. For further detail on methods, for example, please see the publicly available pre-print versions of our co-authored papers.¹ Many colleagues were involved to varying extents in data collection, analysis, discussion and writing of the underlying, contributory work. These include the following people (in alphabetical order): Dr Sophia Becker (Institute for Advanced Sustainability Studies, Potsdam); Dr Elizabeth Dütschke (Fraunhofer Institute for Systems and Innovation Research); Professor Mikael Hildén (SYKE, the Finnish Environment Institute, Helsinki); Dr Rita Klapper (Copernicus Institute of Sustainable Development, Utrecht University); Dr Paula Kivimaa (SYKE and SPRU, the Science Policy Research Unit, University of Sussex); Dr Les Levidow (Open University, UK); Monica Lores (CIEMAT, the Centre for Energy, Environment and Technology, Barcelona); Dr Chris Martin (University of Leeds); Christian Oltra (CIEMAT); Uta Schneider (Fraunhofer Institute for Systems and Innovation Research); Dr Rosa Sala (CIEMAT); Venla Virkamäki (ex-SYKE); Dr Zia Wadud (Institute for Transport Studies and Centre for Integrated Energy Research, University of Leeds). Of course, responsibility for the content of the book lies with the authors.

Note

1 www.researchgate.net/profile/Paul_Upham.



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Part I

Rationale



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1 Introduction

Scope and purpose of the book

Decarbonising energy systems, while at the same time ensuring stable, sustainable and affordable energy supplies, is likely to have major ramifications for the publics¹ who are asked to accept these new energy infrastructures and technologies. In a future with more energy storage and intermittent renewable supply, publics are also likely to be nudged towards accepting some degree of change in their energy consumption patterns (Jacobsson and Johnson 2000). Hence public opinion and practices have become matters of importance for governments, the energy industry and academics alike (Devine-Wright 2009; van der Horst and Toke 2010). In particular, the way in which some renewable (and non-renewable) energy infrastructure projects have faced opposition from the local communities where they are constructed, while others have not (Toke 2005), has contributed to the growing interest in understanding the factors that drive public reactions to energy technology projects. Indeed, it would be fair to say that “social acceptance” of energy technologies has become one among many policy relevant social science concepts in the field of energy transition studies (Sovacool 2014).

The main aim of this short book is to show how concepts that help to explain individual-level psychology can be integrated with sociotechnical transitions theory, with a particular focus on *energy*. The focus here on integration is a more specific and challenging aim than simply showing the relevance of psychology in this context. Sociotechnical transitions theory – which we explain in more depth below – is most often framed in terms of different collectives of system actors, rather than in terms of individual people. Hence, the literature deals with the roles of firms, agencies, organisations as intermediaries, institutions and, less commonly, with entrepreneurs (policy, for profit and non-profit). Moreover, the sociotechnical transitions literature also seeks to generalise from individual cases, to suggest system-level patterns based on observation of the past, which can inform measures to accelerate energy and other transitions in the future.

4 Rationale

All of this mitigates against – and is distinct from – analysis of intra-individual and social psychological processes (see Box 1.1 for an introduction to social psychology). Nonetheless, here we want to show why (social) psychological processes are important for transitions and how these individual-level processes can be analysed in relation to sociotechnical frameworks. While it is arguably straightforward to show the relevance of psychology to sociotechnical change in energy systems via the logical connection of ideas – for example, to show that consumer or citizen psychology has implications for technology use or acceptance and hence for system change – it requires more consideration to find psychological concepts that span individual and social levels, and to find theoretical approaches and methods that support such integration. In this book we use the terms ‘social psychology’ and ‘psychology’ interchangeably for brevity.

Box 1.1 Social psychology

In 1954, Gordon Allport defined social psychology as “the scientific attempt to explain how the thoughts, feelings and behaviors of individuals are influenced by the actual, imagined, or implied presence of other human beings” (Allport 1954, p. 5). Social psychology is thus a broad research domain covering multiple research topics. Overall, social psychologists are concerned with individual behaviours. Although they are specifically concerned with the behaviour of individuals in a broader social context, that context is often narrowed down to a number of specific terms (indeed, we might sometimes say overly-specific).

Here, *thoughts* refer to the beliefs or expectations that people/actors may have vis-à-vis particular phenomena in the world; *feelings* refer to the broad range of emotional reactions, moods and motivations that people experience; and *behaviours* refer to observable actions, i.e. the ‘things’ that we see people doing. Overall, social psychologists share an interest in groups and societies, but their focus is on the individuals that are a part of those groups or societies. Social psychologists seek an understanding of individual persons; uncovering what they care about, how they operate, what their motivations are, and social psychologists do so with the aim of understanding how these individuals navigate their social environments. Of key importance is how people and groups both influence and are influenced by other human beings.

Social psychologists investigate a range of human experiences, for example: intrapersonal phenomena (occurring within the self or in the mind), such as cognition, perception, self-concepts and the behaviours we enact, and interpersonal phenomena (occurring between people), such as social influence and group dynamics. For example, the way we feel about ourselves, e.g. our self-esteem, may mirror how we fit into particular social groups in our social environment. And the way we see and perceive the world, e.g. the way we see other people or peoples, is greatly shaped by influence and persuasion from our peers and the multiple other sources of information we are

subjected to in our lives. Thus, our being in the world is highly social, and it is precisely this social psychological material that is the core interest of social psychologists.

Historically, sociology and psychology have been closely related, with social psychology to some extent linking the two disciplines. While sociology and psychology have become progressively more specialised as disciplines, arguably social psychology in general still does cover some common ground between the two. Reflecting the broad nature of social psychology, multiple types of research methods, addressing the very different types of research inquiry within the field, have been used. Social psychology is an empirical science in that it investigates and reasons from observable phenomena to find answers regarding human behaviours. Diverse methods and research designs are used, from strictly controlled psychological experimental studies to correlational studies, where statistical methods are used to identify contribution to variance, to more qualitative and observational methods. While quantitative methods have perhaps dominated in sustainability-related psychological research, observational and case-based qualitative methods also provide data that can be readily integrated into the types of case-based research design historically favoured in sociotechnical transitions studies.

In summary: for its vast and very diverse array of past and potential future research topics, social psychology may be commonly described as attentive towards the social components of individual behaviours. Social psychology is an empirical science; it is about individual people; it deals with our thoughts, feelings and behaviours; it uses and infers from many types of data; and it does so mindful of how all of these phenomena are shaped by the social world around us (Ross *et al.* 2010; Stangor 2014).

For these reasons, while we have tried to write this book in an accessible style, it is somewhat theoretical in its leaning, partly because it addresses some of the issues that underlie the relative absence of psychology in the energy-oriented sociotechnical transitions literature. That said, we hope the book is still comprehensible by students at different levels, even if some of the issues discussed in Part I may be beyond what they need to deal with.

The book is divided into two parts. Part I deals with the somewhat abstract issues of bridging ontological and disciplinary differences in studies of human behaviour in relation to energy transitions. Here, we set out an integrative approach to connecting the psychological with the socio-technical. We also define various terms and perspectives that may be unfamiliar to some readers. Part II illustrates how close connections between psychological and sociotechnical concepts can be made in the context of energy transitions, despite differing underlying ontologies. As we expect that there will also be interest in the more general relevance of psychology to energy transitions, in Chapter 9 we set out a number of possibilities and research directions, while leaving more in-depth investigation of connections to systems-level transitions processes for future work.