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Energy and Transport in Green Transition

Perspectives on ecomodernity

Edited by
Atle Midttun and Nina Witoszek

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Energy and Transport in Green Transition

This book breaks new ground in the studies of green transition. It frames the ongoing transformation in terms of a "battle of modernities" with the emerging vision of ecomodernity as the final destination. It also offers a systematic exploration of the potential for extensive transformation of carbon-intensive sectors—with a focus on energy and transport—towards a low- or post-carbon economy. The book does so in a comparative perspective, by pointing to a diversity of techno-economic and institutional solutions in the mature Western economies, and in the rapidly growing East and developing South. The contributors highlight a broad spectrum of available alternatives as well as illuminate conflicting interests involved. They also demonstrate how solutions to the climate challenge require parallel technological and governance innovation. The book advocates a new, overarching vision and agenda of ecomodernity—based on a synergistic paradigm-shift in industry, politics, and culture—to trigger and sustain the ecological innovation necessary to tip development in a green direction. This vision cannot be monolithic; rather, it should reflect the diverse interests and conditions of the global population.

This book is aimed at researchers and postgraduate students of energy, transport, environmental and climate policies, as well as development, environment, innovation, and sustainability.

Atle Midttun is Professor at the Norwegian School of Management, Institute of Innovation and Economic Organisation, Director of the Centre for Corporate Responsibility, and Co-director of the Centre for Energy and Environment.

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Foreword

This book takes stock of trends, developments and opposing forces at play in the process of transition to a greener world. The shift from carbon economy to ecological modernity is, arguably, one of the major transformations of our time, and raises broad questions about reimagining society both at the level of technology, politics and cultural values.

We have chosen to study green transformation through the lenses of two major sectors of the economy—energy and transport—both with climate footprints of such dimensions that they are a *sine qua non* part of any adequate strategy for climate stabilization. In order to better highlight pivotal contrasts between mature, rapid growth and developing economies, we have also undertaken a comparison of varying responses to climate change on four continents.

The scale and scope of this undertaking has only been possible thanks to generous funding from the Norwegian Research Council, which has allowed us to stage collaborative research in Europe, the USA, China and Africa.

The case studies in our chapters synthesize insights from a large number of sources, which allows us to offer relatively broad descriptions of main economic, technological, political and cultural trends. Although informed by a range of interdisciplinary perspectives, our goal has been primarily descriptive, orientated towards presenting holistic summaries of the main patterns of development. To ensure the maximum accessibility of our volume, we have chosen to limit detailed theoretical discussion within narrow disciplinary boundaries. Instead, we have prioritized conceptual contributions that offer novel approaches across techno-economic, institutional and cultural realms.

We are grateful to our research partners for their inspiration and generous comments which have enriched this volume—in particular the intellectual partners from the CERES21 (Creative Responses to Sustainability) project (Tom Burns, Paddy Coulter, Audrey Gadzekpo, Karl Gerth, Alberto Martinelli, James Miller, James Painter, Philippe Schmitter, Sverker Sörlin, Jin Wang and Joseph Yaro), and our Stanford colleagues from the MAHB (Millennium Alliance for Humanity and the Biosphere) programme—especially Paul Ehrlich and the late Steve Schneider. In addition, we wish to

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Atle Midttun and Nina Witoszek

Introduction

It is diabolically difficult to interpret a crisis and predict possible scenarios of exit from peril. Even the most stringent selection of data to assess the status quo is bound to be biased, and the future is always qualified by an "if." Available literature on human responses to climate change—from the IPCC reports to studies of green innovation—shows a fuzzy landscape, where almost everything is possible: an apocalypse, a muddling-through, a glorious future, even a Brave New World with a global green hegemon. Suffice it to compare two diagnoses. First:

> The world has turned green. Sustainability is more than just a business trend; it is not just a buzzword for business to find new ways of selling old products in new guises. We are experiencing a revolution, perhaps as profound as industrial revolution, which has altered every facet of life as it was known and understood. This time around, belching smoke-stacks are not part of the mix, but windmills, battery-run cars, energy-efficient appliances, and recycling systems are.
>
> (Berger 2011: 1)

And second:

> Very little has been achieved in addressing climate change in the last two decades ... Coal power stations continued to be built on an enormous scale in China and India. Indeed, Europe is back in the new coal power stations business. The European Union's Emissions Trading Scheme ... came perilously close to collapse. The Kyoto-driven international negotiations keep lots of bureaucrats busy but still offer no hope of progress until [the] next decade at the earliest. ... Politicians are ... scrambling to cut subsidies for renewables.
>
> (Helm 2012: ix)

How to square these opposing scenarios? Topical analyses generated in 2014 reinforce, respectively, Cassandra or Pollyanna trends. To start on the bright side, *The New Climate Economy* (UN 2014) assures us that, irrespective of income level and standard of living, all countries have the possibility to continue with economic growth, while at the same time reducing the risk of climate change. Similarly, Stefan Heck et al. in *Resource Revolution* (2014) play a techno-optimistic tune and insist that the climate crisis will be solved within the existing capitalist framework through a shift to a sustainable production alone: the deployment of biomass, machines and infrastructure, and new uses of information technology. Naomi Klein, in contrast, gives no chance to the current form of neoliberal capitalist production, which in her view, by its very nature is "at war with the planetary system" (Klein 2014). In Klein's view, the situation is so dramatic that only a new "Marshall Plan for the Earth" can save us—in other words, a massive shift to the renewable economy whose main actors are no longer greedy corporations but environmental social movements and local communities.

Interestingly enough, there is one thing that these conflicting diagnoses and solutions share: an advocacy of environmental ideas which point less to a return to a Spartan, pre-modern nature-utopia, and more to the mobilization of *modernity's innovative potential* to get the planet out of its current predicament.

This book is an attempt to go beyond both the extremism of the anti-capitalist critique and the radical enthusiasm of techno-economic positivism in current perceptions of the climate challenge. Instead, it focuses on exploring political, economic and technological entanglements involved in the proliferation of climate problems and the ways they can be resolved to boost a greener economy and culture. To capture the nature of these entanglements, the central concept we deploy in our analysis is that of the *battle of modernities*[1]—a clash of techno-economic scenarios existing side-by-side, each clamoring for dominance. First, there is "carbon modernity," which—it has to be stressed—is far from stagnant, but stubbornly attempts to reinvent itself in the green direction. There are remnants of "nuclear modernity" which, despite the disasters of the past decades, is still considered by many to be the fastest way to produce clean energy—accepted on ethical and moral grounds only after improvements of safety standards. And finally, there is the sluggish dawn of "green modernity," which flaunts new agendas ranging from "natural capitalism" (Hawken et al. 1999), the "Factor Five" economy (von Weizsäcker et al. 2009) to "green growth" (UNESCAP 2012).

Behind these colliding economic modernities, there are more encompassing, value-charged myths—with their respective icons, images and heroes—which have shaped both the relationship between techno-science and nature and a vision of a better future. There have been three such pivotal stories. The first one states that there are no limits to human dreams