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Energy, Climate and the Environment
Series Standing Order ISBN 978-0-230-00800-7 (hb)
978-0-230-22150-5 (pb)

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Learning from Wind Power

Governance, Societal and Policy Perspectives on Sustainable Energy

Edited by

Joseph Szarka

*Reader in Policy Studies, Department of Politics,
Languages and International Studies, University of Bath*

Richard Cowell

*Reader in Environmental Planning,
School of City and Regional Planning, Cardiff University*

Geraint Ellis

*Senior Lecturer, School of Planning Architecture and Civil Engineering,
Queen's University Belfast*

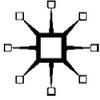
Peter A. Strachan

*Professor in Energy Policy and Management,
Aberdeen Business School, Strategy and Policy Group, Robert Gordon University*

Charles Warren

*Senior Lecturer, Department of Geography and Sustainable Development,
University of St Andrews*

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Editorial matter, selection, introduction and conclusion © Joseph Szarka, Richard Cowell, Geraint Ellis, Peter A. Strachan and Charles Warren 2012

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Softcover reprint of the hardcover 1st edition 2012 978-0-230-29874-3

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First published 2012 by
PALGRAVE MACMILLAN

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Palgrave Macmillan in the US is a division of St Martin's Press LLC, 175 Fifth Avenue, New York, NY 10010.

Palgrave Macmillan is the global academic imprint of the above companies and has companies and representatives throughout the world.

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ISBN 978-1-349-33496-4

ISBN 978-1-137-26527-2 (eBook)

DOI 10.1057/9781137265272

This book is printed on paper suitable for recycling and made from fully managed and sustained forest sources. Logging, pulping and manufacturing processes are expected to conform to the environmental regulations of the country of origin.

A catalogue record for this book is available from the British Library.

A catalog record for this book is available from the Library of Congress.

10 9 8 7 6 5 4 3 2 1

21 20 19 18 17 16 15 14 13 12

Contents

<i>List of Illustrations</i>	vii
<i>List of Abbreviations</i>	ix
<i>Acknowledgements</i>	xi
<i>Series Editor's Preface</i>	xiii
<i>Notes on Contributors</i>	xvi
1 Wind Power: Towards a Sustainable Energy Future? <i>Charles Warren, Richard Cowell, Geraint Ellis, Peter A. Strachan and Joseph Szarka</i>	1
Part I Governance and Policy Learning	
2 Wind power: Opportunities, Limits and Challenges <i>David Elliott</i>	17
3 Wind Power Policy in Germany and the UK: Different Choices Leading to Divergent Outcomes <i>Volkmar Lauber</i>	38
4 Wind Power and Spatial Planning in the UK <i>Simon Power and Richard Cowell</i>	61
5 From Laggard to World Leader: The United Kingdom's Adoption of Marine Wind Energy <i>Stephen Jay</i>	85
6 Planning <i>with</i> the Missing Masses: Innovative Wind Power Planning in France <i>Alain Nadaï</i>	108
Part II Societal Engagement with Wind Power	
7 The Misdirected Opposition to Wind Power <i>Martin J. Pasqualetti</i>	133

8	The Social Experience of Noise from Wind Farms <i>Claire Haggett</i>	153
9	Navigating a Minefield? Wind Power and Local Community Benefit Funds <i>Peter A. Strachan and David R. Jones</i>	174
10	Fostering Public Engagement in Wind Energy Development: The Role of Intermediaries and Community Benefits <i>Patrick Devine-Wright</i>	194
11	Social Acceptance of Wind Power Projects: Learning from Trans-National Experience <i>Stefanie Huber, Robert Hobarty and Geraint Ellis</i>	215
12	Drawing Lessons from Wind Power for Future Sustainable Energy <i>Joseph Szarka, Geraint Ellis, Richard Cowell, Peter A. Strachan and Charles Warren</i>	235
	<i>Index</i>	255

Illustrations

Tables

4.1. Methodology for the strategic assessment of opportunities for major wind power capacity in Wales	68
6.1 Number of local planning documents (all categories) issued by the regions, departments or other territorial entities per year (publication dates)	112
7.1 A sample of anti-wind organisations	135
7.2 Four types of concern about wind power (generation phase)	137

Figures

3.1 Annual installations of wind power in Germany and the UK, 2000–2010	42
3.2 Cumulative installations of wind power in Germany and the UK, 1997–2010	43
5.1 Offshore wind activity in United Kingdom waters	89
6.1 From behavioural to spatial representation: birds in ‘micro-siting’	114
6.2 Open forms of planning: excerpts from the Narbonnaise planning process	121
7.1 Protest against wind development in France	134
7.2 Protest banner for the proposed development on Red Oak Knob, Virginia	139
7.3 A ‘wind wall’ at Tehachapi Pass, California, showing landscapes remoulded by wind developers	142
7.4 Objections to wind energy can largely be reduced to considerations of quality of life, rather than individual complaints	146
7.5 Welcoming sign by owners on what they call ‘Harmony Ridge’	148
7.6 Billboard along Interstate-10, near Palm Springs, California, suggesting that the community and the wind developers, once at odds, are now in accord	149

viii *List of Illustrations*

10.1	Contexts of the two offshore wind energy cases: Lincs and Gwynt y Mor	201
11.1	The elements of social acceptance of wind energy projects	217

Abbreviations

ADEME	Agence de l'Environnement et de la Maîtrise de l'Energie (French Environment and Energy Efficiency Agency)
AEP	Association of Electricity Producers
ANT	Actor Network Theory
BERR	(UK Department of) Business, Enterprise and Regulatory Reform
BWEA	British Wind Energy Association
CCS	Carbon Capture and Storage
CEC	Commission of the European Communities
DDE	Direction Départementale de l'Équipement (French 'roads and infrastructures' administration)
DECC	Department of Energy and Climate Change (UK)
Defra	Department for Environment, Food & Rural Affairs (UK)
DIREN	Direction régionale de l'environnement (French Regional Environmental Administration)
DoEHLG	Department of Environment, Heritage and Local Government (Republic of Ireland)
DTI	Department of Trade and Industry (UK)
EEA	European Environment Agency
EEG	Erneuerbare-Energien-Gesetz (German Renewable Energy Sources Act of 2000)
EIA	Environmental Impact Assessment
ETSU	Energy Technology Support Unit
EWEA	European Wind Energy Association
FiT	Feed-in Tariff
FOE	Friends of the Earth
FTE	full time equivalent
GHG	greenhouse gas
GW	gigawatt (1000 megawatts)
HMG	Her Majesty's Government
HVDC	High Voltage Direct Current
IEA	International Energy Agency
IEEP	Institute of European Environmental Policy
LPO	Ligue pour la Protection des Oiseaux (French Bird Protec- tion Organisation)
MS	Marine Scotland

x *List of Abbreviations*

MW	megawatt
MWh	megawatt-hour
NFFO	Non-Fossil Fuel Obligation
NGO	Non-Governmental Organisation
NIMBY	not in my back yard
NWCC	National Wind Coordinating Committee (USA)
ODPM	Office of the Deputy Prime Minister (UK)
OFGEM	Office of the Gas and Electricity Markets (UK)
PIU	Performance and Innovation Unit (UK)
PNR	Parc Naturel Régional (French 'Regional Nature Park')
PNRGC	Parc Naturel Régional des Grands Causses
PNRNM	Parc Naturel Régional de la Narbonnaise en Méditerranée
PV	photovoltaic
RD&D	Research, Development and Demonstration
RE	renewable energy
REA	Renewable Energy Association
RES	renewable energy sources
RES-E	renewable energy sourced electricity generation
RET	renewable energy technology
REZ	Renewable Energy Zone
RO	Renewables Obligation
ROC	Renewable Obligation Certificate
RSPB	Royal Society for the Protection of Birds
RTE	Réseau de Transport d'Electricité (French National Grid Operator)
SEA	strategic environmental assessment
SEAI	Sustainable Energy Agency Ireland
SEDD	Scottish Executive Development Department
SNH	Scottish Natural Heritage
SPEC	Species of European Conservation Concern
SSA	strategic search area
SSE	Scottish and Southern Energy
STW	Scottish Territorial Waters
TAN8	Technical Advice Note 8 (Wales)
TCE	The Crown Estate
VDMA	Verband Deutscher Maschinen- und Anlagenbau (The German Association of Equipment Producers)
WAG	Welsh Assembly Government
WPDZ	wind power development zones
WWF	World Wildlife Fund

Acknowledgements

This book had its origins in a United Kingdom based seminar series in 2008–2009 entitled ‘Where Next for Wind? Explaining National Variations in Wind Power Deployment’. The series was sponsored by the UK Economic and Social Research Council – Grant Number RES-451-26-0386 – and the energy company Scottish and Southern Energy (SSE), to whom we wish to express our thanks.

The additional support provided by SSE allowed us to expand the focus of the seminar series to include a number of international experts who might not otherwise have been able to deliver papers and share their wealth of experience. The seminar series consisted of five events, each of which were led by the editors of this book, with the overarching aim of the series being to critically investigate the key political, institutional, social and economic factors affecting the deployment of wind power within Europe and North America. The series brought together more than 150 participants, with invited speakers and participants representing industry, NGOs, government and academic organisations. Full details of the seminar series can be found at <http://www4.rgu.ac.uk/abs/research/page.cfm?pge=75071>.

Many of the chapters in this book build on papers presented in those seminars, and we would like to thank all of the presenters and participants for their valuable insights. In this volume, the contributors have reflected on their findings in the light of international experience, and recent shifts in energy policy and politics, in order to draw out key lessons for the wider agenda of transitions to sustainable energy.

We express our gratitude to everyone involved in the seminar series and the book, but, as with any such major undertaking, it is not possible to name everyone. We would like to thank our own host universities for the additional time and financial support that they provided. In particular we would like to thank: Professor Rita Marcella, Dean of the Aberdeen Business School, Robert Gordon University; Professor Peter Robertson, Vice Principal of Research and Commercialisation, Robert Gordon University; and Dr Brian Lockhart Smith, Head of Projects, SSE. We would also like to acknowledge that Geraint Ellis received funds for a teaching buy-out from the Irish Social Science Platform during the preparation of the book.

The book would not have been possible without the hard work of our contributors, and we acknowledge their significant efforts in bringing the book to a timely conclusion. We particularly want to thank Professor David Elliott, the editor of the *Energy, Climate and the Environment* series, for commissioning this book and contributing to it, and to the Palgrave editorial team for bringing it to the public.

Series Editor's Preface

Energy, Climate and the Environment

Concerns about the potential environmental, social and economic impacts of climate change have led to a major international debate over what could and should be done to reduce emissions of greenhouse gases, which are claimed to be the main cause. There is still a scientific debate over the likely scale of climate change, and the complex interactions between human activities and climate systems, but, in the words of no less than the (then) Governor of California, Arnold Schwarzenegger, *'I say the debate is over. We know the science, we see the threat, and the time for action is now.'*

Whatever we now do, there will have to be a lot of social and economic adaptation to climate change – preparing for increased flooding and other climate related problems. However, the more fundamental response is to try to reduce or avoid those human activities that are seen as causing climate change. That means, primarily, trying to reduce or eliminate emission of greenhouse gases from the combustion of fossil fuels in vehicles, houses and power stations. Given that around 80 per cent of the energy used in the world at present comes from these sources, this will be a major technological, economic and political undertaking. It will involve reducing demand for energy (via lifestyle choice changes), producing and using whatever energy we still need more efficiently (getting more from less), and supplying the reduced amount of energy from non-fossil sources (basically switching over to renewables and/or nuclear power).

Each of these options opens up a range of social, economic and environmental issues. Industrial society and modern consumer cultures have been based on the ever-expanding use of fossil fuels, so the changes required will inevitably be challenging. Perhaps equally inevitable are disagreements and conflicts over the merits and demerits of the various options and in relation to strategies and policies for pursuing them. These conflicts and associated debates sometimes concern technical issues, but there are usually also underlying political and ideological commitments and agendas which shape, or at least colour, the ostensibly technical debates. In particular, at times, technical assertions can be

used to buttress specific policy frameworks in ways which subsequently prove to be flawed

The aim of this series is to provide texts which lay out the technical, environmental and political issues relating to the various proposed policies for responding to climate change. The focus is not primarily on the science of climate change, or on the technological detail, although there will be accounts of the state of the art, to aid assessment of the viability of the various options. However, the main focus is the policy conflicts over which strategy to pursue. The series adopts a critical approach and attempts to identify flaws in emerging policies, propositions and assertions. In particular, it seeks to illuminate counter-intuitive assessments, conclusions and new perspectives. The aim is not simply to map the debates, but to explore their structure, their underlying assumptions and their limitations. Texts are incisive and authoritative sources of critical analysis and commentary, indicating clearly the divergent views that have emerged and also identifying the shortcomings of these views.

The development of wind power has certainly provided many examples of divergent views and conflicts. For some it is the best way forward for dealing with climate change, while for others it is an environmental disaster. Some wind supporters see objectors as retrogressive NIMBYs, while some objectors see developers as despoilers of scenic views and natural heritage. Aesthetic issues and landscape preservation are important, but perhaps, more substantially, some objectors claim the wind power cannot make a significant contribution to dealing with climate change or energy security.

With wind power heading soon for 200GW globally, it is good time to take stock and see how (and whether) some of these issues have impacted on its development and how wind power might be expected to develop in future. The technology seems basically unproblematic, apart from the issue of intermittency, which is really just an operational and economic problem – it costs money to provide balancing services, and as the proportion of wind on the grid expands, more balancing has to be arranged. Less tractable are some of the institutional issues. As this book illustrates, in the UK, the planning permission processes and local objections have led to major delays, and the financial support system has arguably not been effective at creating the right investment climate, compared to that in other countries.

Nevertheless wind power is moving ahead in the UK, offshore especially, and as I indicate in my own contribution, it is likely to remain the dominant renewable source for some while in the UK and elsewhere.

Focussing on the developed world, with particular emphasis on Europe and the UK, the book looks at some of the problems that will have to be overcome if ambitious targets for wind power are to be met. Although the focus is mainly on wind, it argues that many of the lessons that emerge from the wind power field are also likely to be relevant to other renewables as they seek to move into wide scale use.

Contributors

Richard Cowell is Reader in Environmental Planning at Cardiff University, and his research interests lie in the relationship between land use planning and sustainable development. He has researched the role of strategic spatial planning in delivering renewable energy in Wales, community benefits from wind energy and the impacts of devolution within the British state on renewable energy outcomes. His email address is cowellrj@cardiff.ac.uk.

Patrick Devine-Wright holds a Chair in Human Geography at the University of Exeter, and is an experienced leader of and contributor to multi-disciplinary research projects. His research spans several disciplines including human geography, environmental planning and environmental psychology. His research interests include the symbolic and affective dimensions of places, particularly the concept of place attachment, and the relevance of place attachment for environmental issues such as climate change and the social acceptance of new energy infrastructure such as wind farms and overhead power lines, including issues of 'NIMBYism' and public engagement.

David Elliott is Emeritus Professor in Technology Policy at the Open University, where he has carried out research and developed courses on renewable energy policy. He has worked previously for the UK Atomic Energy Authority and the Central Electricity Generating Board. He is the editor of the journal *Renew* and writes a weekly 'Renew Your Energy' blog for the Institute of Physics' Environmental Research Web.

Geraint Ellis is Senior Lecturer in the School of Planning, Architecture and Civil Engineering at Queen's University, Belfast. His key interests are in environmental planning, particularly in energy and marine issues, health and the built environment and planning pedagogy and professionalism. His e-mail address is g.ellis@qub.ac.uk.

Claire Haggett is Lecturer in the Sociology of Sustainability at the University of Edinburgh. She specialises in a range of energy issues, including understanding opposition to renewable energy, and the wider implications of its implementation on people, communities, and landscapes. Claire has published widely on these topics, is an

invited panellist and speaker at wide range of UK and international conferences for both academics and practitioners, and has conducted research funded by the ESRC, NERC, the UK Energy Research Centre and the European Union. She leads the University of Edinburgh's MA in Sustainable Development.

Robert Horbaty is an energy and sustainable development expert, with over 25 years of experience. He previously worked as project manager with the Ökozentrum Langenbruck and was an elected representative in the Langenbruck community for six years. Since 1993 he has run his own company, ENCO Energie-Consulting AG, which has had a Nicaraguan subsidiary since 2004. ENCO acts as consultancy office for energy planning, energy management and sustainable energy supply with a focus on communal policies and wind energy. The company has managed the Swiss energy programme, holds the management of the Swiss national label organisation *Energiestadt* and runs the Swiss wind energy association *Suisse Eole*. He has been the long-standing head of the board of a Swiss wind power company which, among other successes, has delivered Switzerland's first citizens' wind farm. He has participated in several tasks of the IEA Implementing Agreement for Co-operation in the research, development and deployment of wind energy systems and since 2008 has acted as the operating agent for Task 28 on Social Acceptance.

Stefanie Huber holds a Master's in Environmental Sciences and a certificate in teaching on environmental issues. Through traineeships in international industrial companies, she has gathered experience in environmental policies and their implementation. She worked as a junior energy consultant for the Swiss and European electricity market in 2008 where she concentrated on development of renewable energies and climate policies. She joined ENCO in 2009 to work for the IEA Wind Task 28 on Social Acceptance where she is currently managing the publication of the state-of-the-art report, good practice recommendations and other outputs. She has also run projects on communal energy management systems (the European Energy Award), smart grid activities and renewable energies. She gained additional experience on communal views of renewable energy projects as local parliamentarian.

Stephen Jay is Lecturer in the School of Environmental Sciences at the University of Liverpool in the UK. His field of interest is environmental planning and management, with a particular focus on the marine environment. He has followed the development of offshore wind energy

and also the progress of marine spatial planning throughout Europe and published widely on these topics. He is an associate member of the Royal Town Planning Institute.

David Jones is Lecturer in Business Strategy and the Environment, Aberdeen Business School, Robert Gordon University, UK. His current research is focussing on the organisational metaphors drawn from evolutionary and environmental psychology, in the context of the transitional and trans-disciplinary challenge of ecological sustainability.

Volkmar Lauber is Professor in Comparative Politics at the University of Salzburg, Austria. His current research is on the politics of energy policy, especially renewable energy policy, with a focus on support schemes and other regulation in Germany and at the European Union level. It is based primarily on institutionalist and discursive approaches. For further information, see <http://www.uni-salzburg.at/politikwissenschaft/lauber>. His email address is Volkmar.Lauber@sbg.ac.at.

Alain Nadaï is a socio-economist and a research director at CIRED, the International Research Centre on Environment and Development, which is part of the CNRS in France. His research activity has centred on environmental controversies as well as on environmental, energy and landscape policies. His research fields include climate policy, EU pesticide regulation, EU product eco-labelling policies, landscape policies and, more recently, renewable energy policies and carbon capture and storage. He coordinated an international research program on the development of national and local wind power policies (2005–2010). He is leading author for the IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation (SRREN).

Martin J. Pasqualetti is Professor of Geography in the School of Geographical Sciences and Urban Planning at Arizona State University in the USA, and Associate Member of the National Wind Coordinating Collaborative in Washington DC. He has published books and articles on wind power, landscape evolution, public perception of risk and the social costs of energy. His current research interests focus on the social barriers to renewable energy, the energy-water nexus and energy security. His email address is Pasqualetti@asu.edu.

Simon Power is Associate Director at the consultancy Arup, where he leads on renewable energy. His commercial interests lie in the planning and development of renewable energy – from feasibility to consent and construction. He has undertaken a range of consultancy and spatial

planning research relating to delivering renewable energy across the UK over the past ten years, for both the private and public sector. Commissions undertaken have been at scales ranging from the local to the national. His email address is simon-j.power@arup.com.

Peter A. Strachan is Professor in Energy Policy and Management, Aberdeen Business School, Robert Gordon University, UK. His research interests cover the theoretical and business aspects of the relationship between public policy and sustainable development, with particular reference to energy and the environment. Since 2005 his work has focused on international wind power deployment, community ownership models and social acceptance of major energy developments. He has published widely in international journals and his books include *Wind Power and Power Politics* (2010). For further information, see <http://www4.rgu.ac.uk/abs/staff/page.cfm?pge=5379>. His email address is p.a.strachan@rgu.ac.uk.

Joseph Szarka is Reader in Policy Studies in the Department of Politics, Languages and International Studies, University of Bath, UK. His research interests are in environmental, climate and energy policy. He has published widely in international journals and his books include *The Shaping of Environmental Policy in France* (2002) and *Wind Power in Europe: Politics, Business and Society* (2007). His email address is J.P.Szarka@bath.ac.uk.

Charles Warren is Senior Lecturer in the Department of Geography and Sustainable Development at the University of St Andrews, UK. His recent research within the field of environmental management and policy has included projects on the validity of the concept of 'native' and 'alien' species, the impacts of post-devolution land reform in Scotland and public attitudes to onshore wind farms. The second edition of his book *Managing Scotland's Environment* was published in 2009. His email address is crw2@st-andrews.ac.uk.