

Environment & Policy

Volume 63

The series, *Environment & Policy*, aims to publish research that examines global and local environmental policies. It covers a variety of environmental topics ranging from biodiversity, ecology, pollution, climate change, agriculture, biodiversity, sustainability, resources, to water security. This long-standing series has published renowned authors for over a decade and it continues to be the home for environmentalists, policy experts, and related discipline experts who are genuinely interested in tackling the issues of our days.

Gamze Tanil

Sustainable Energy Development

A Comparative Policy Analysis of the EU
Member States

 Springer

Gamze Tanil
Istanbul, Türkiye

ISSN 1383-5130

ISSN 2215-0110 (electronic)

Environment & Policy

ISBN 978-3-031-28064-1

ISBN 978-3-031-28065-8 (eBook)

<https://doi.org/10.1007/978-3-031-28065-8>

The book presents the results of research conducted at the University of West Bohemia within the E-ADAPT Jean Monnet Centre of Excellence (project No. 620971-EPP-1-2020-1-CZ-EPPJMO-CoE) co-funded by the European Union.

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2023

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Foreword

With growing impacts of ongoing climate change, which started recently in increasing amount of extreme events to hit after “distant” parts of world also European territory including EU member states, the issue of reasons, and in particular potential solutions, is increasingly reflected in both public and political discussions within the region.

This process has different dynamics in different parts of European Union. There are many reasons for this difference; among others it is obviously the level of economic development, dependence on domestic sources of energy, and consequent structure of national economics, but also trade relations and dependences as well as political and societal history of each member state.

From the times, when former Prime Minister and later also President of the Czech Republic V. Klaus presented ecology and environmental measures as “cherry on the cake” of successful economic development, the understanding of environmental and climatic threats evolved dramatically. Repeated experience with ever-increasing costs needed to addressing of extreme climate impacts raised the awareness and interest of public, and consequently also the political actors.

Evolving views on the way how to address these problems obviously impacted also Common European approaches and led to dramatic evolution of environmental and particularly climatic agenda at the EU level. First visible reflection of this process was the creation of dedicated Directorate General for climate within European Commission structure, with consequent flow of agreements on – now permanently growing and fine-tuned – legislative framework. This led EU also to overtake global position of leader in climatic agenda.

There is overall understanding and agreement that in addressing climate change challenge, energy generation and consumption has a crucial role. As the sector most exploiting fossil fuels and sources of energy, contributing dominantly to greenhouse gas production, it is an obvious target for potential solutions. In this context, transformation of energy generation from fossil to sustainable energy sources is clearly one of the main elements promising long-term positive outcome. “Purely” climatic and environmental perception of this transformation gained additional geo-political, safety, and security meaning after unprecedented Russian aggression to Ukraine,

and consequent use of traditional (oil, and dominantly gas) cheap fossil fuels as indirect weapon to affect and undermine economies of EU member states. All this elevated the issue of energetic transformation to the top of political agenda. Transformation of energy mix to sustainable and dominantly renewable source is no more a political exclusivity of green parts of political spectrum, but find its way into political programs of vast majority of democratic political parties across political representation. Adoption of until now globally most ambitious transition strategy, so-called “Green Deal for Europe” by EU Commission led by conservative-right President Ursula von der Leyen is a good example of this fact.

However broad is understanding of necessity to transform to sustainable sources of energy, the transition itself is a major political and economic challenge. History of development of energy sources in different parts of Europe, the infrastructure build for decades, distribution networks, linked industry structure, etc. make this transition costly and difficult – more in the parts of EU which were dominantly dependent on coal and other domestic fossil fuels, or evolving their structure on the presumption of long-time availability of cheap imports.

All these factors were reflected in developing policy frameworks and societal discussions within European Union. Understanding of processes, root-causes, traditions, and development of policies at national, regional, but also EU level is a prerequisite for shaping the future developments, and particularly in addressing the growing need to speed-up this process. Present analysis written by Gamze Tanil provides a very informed and detailed insight, which allows for better understanding of differences and commonalities within EU and also for identifying main elements of future progress in the area of sustainable energy development. Selection of two neighbors – Germany and Czech Republic – for this analysis is particularly helpful. States with different economic history and status, with very intensive trade relations and sometimes almost opposite starting points in energy transformation discussions, but at the same time member states which are both contributing to the common EU goals and EU leadership in global terms, provide excellent case studies, full of experience, solutions, and lessons learned, which may be instrumental in shaping future policy instruments and implementation solutions elsewhere.

When observing objective data on ongoing climate change, trends in glass-house emissions, global developments in climatic agenda, and options, which are available for addressing the problem, the conclusion that both political will and societal support are equally important and really able to reshape the future is reassuring.

Former Minister of Environment of the Czech Republic
Prague, Czech Republic

Ladislav Miko

Former Director for Biodiversity Protection of DG
Environment of European Commission and Deputy
Director General of DG SANTE for Food Safety
Prague, Czech Republic

Contents

1	Introduction	1
	The Challenge: Sustainable Energy Development	1
	Fossil Fuels in Europe’s Energy Structure	5
	Energy Transition Policy	7
	Outline of the Book	8
	References	9
2	Conceptual and Methodological Framework	11
	Introduction	11
	Energy Policy Formulation: Actors, Attitudes, and Actions	11
	Research Hypotheses	22
	Methodology	24
	References	25
3	Policy Formulation in European Union	29
	Development of the EU Environmental Policy	29
	Development of the EU Renewable Energy Policy	34
	Policy Norms and Objectives	34
	Policy Legislation	39
	Conclusion	49
4	Policy Formulation in Member States	51
	Introduction	51
	Czech Republic	51
	Policy Norms and Objectives	52
	Policy Legislation	60
	Germany	65
	Policy Norms and Objectives	65
	Policy Legislation	74
	Conclusion	82

5	Political and Public Perceptions	85
	Introduction	85
	Germany	85
	Political Perceptions	85
	Public Perceptions	89
	Czech Republic	92
	Political Perceptions	92
	Public Perceptions	97
	Expert Perceptions	101
	Conclusion	110
6	Policy Implementation	113
	Introduction	113
	Development Trajectory of the Renewable Energies in the EU	114
	Fulfilment of the 2020 Renewable Energy Targets in the EU	125
	Future Projections for the Renewable Energies in the EU	130
	References	133
7	Conclusion	135
	We Can Reshape Our Energy Systems	135
	Energy Transition Policy	136
	Research Outcomes	137
	Pathway to 2030	141
	Contribution of This Book	142

About the Author

Gamze Tanil is a researcher and lecturer in Politics and International Relations with a specialization in European Politics and Environmental Politics. She acquired Masters in European Studies in 2003 and Doctorate in International Relations in 2010. She has worked as a researcher and lecturer at several universities in United Kingdom, Norway, Sweden, Czech Republic, and Poland and taught various courses and seminars on European history and politics. Her current research agenda revolves around sustainability, environment, and energy policies. In 2021, she published a book on sustainable water and waste management policies in Europe to improve our understanding of the patterns and dynamics of structural change in response to current levels of urbanization and industrialization. In 2023, a new book in sustainability research comes out with an analysis of energy transitions from fossil fuels to renewable energy sources. This book provides a comprehensive assessment of the energy transition process with a dedicated focus on the coordination of policies, regulations, strategies, and social learning in the European Union member states to overcome barriers to change and foster sufficient impetus toward structural transition. This broad framework integrates different phases, levels, and dimensions to provide overarching frames for understanding the political, legal, and societal contexts of sustainable energy transition.

List of Figures

Fig. 2.1	Five key principles to accelerate energy transition	23
Fig. 4.1	Czech Republic’s executive portfolio in renewable energy policy. (Author’s own compilation)	53
Fig. 4.2	Czech Republic’s legislative portfolio in renewable energy policy. (Author’s own compilation)	61
Fig. 4.3	Germany’s executive portfolio in renewable energy policy. (Author’s own compilation)	67
Fig. 4.4	Germany’s legislative portfolio in renewable energy policy. (Author’s own compilation)	75
Fig. 5.1	Conceptual framework of political and public support for energy transition. (Author’s own compilation)	86
Fig. 6.1	Electricity generation from RES in the EU-27 (2004–2020). (Eurostat, 2020).....	115
Fig. 6.2	EU member states with the highest installed renewable energy capacity (2011–2020). (IRENA, 2021)	115
Fig. 6.3	Comparison of the EU member states in terms of installed wind energy capacity (2020). (EurObserv’ER, 2022a).....	116
Fig. 6.4	Share of wind energy in gross electricity generation in Germany (2002–2020). (Fraunhofer ISE, 2022a).....	117
Fig. 6.5	Development trajectory of onshore wind energy in Germany (2000–2020). (Bundesverband WindEnergie, 2021)	117
Fig. 6.6	Development trajectory of wind energy in the Czech Republic (2010–2020). (IRENA, 2022).....	119
Fig. 6.7	EU member states with the highest hydroenergy generation (2012–2020). (IRENA, 2022)	119
Fig. 6.8	EU member states with the highest installed solar energy capacity (2011–2020). (IRENA, 2022).....	120
Fig. 6.9	Annual solar share of electricity production in Germany (2002–2020). (Fraunhofer ISE, 2022b)	121

Fig. 6.10 Development trajectory of solar PV energy in the Czech Republic (2010–2020). (IRENA, 2022)..... 122

Fig. 6.11 EU member states with the highest biogas generation (2015–2020). (EurObserv'ER, 2021a)..... 123

Fig. 6.12 Development trajectory of biogas energy in Germany (2000–2020). (German Biogas Association, 2020)..... 124

Fig. 6.13 Electricity production from renewable municipal waste in EU-27 (2016–2020) (electricity only and CHP plants combined). (EurObserv'ER, 2021a) 125

Fig. 6.14 Solid biofuels primary energy production and consumption in the EU-27 (2010–2020) (excluding charcoal). (EurObserv'ER, 2021b) 126

Fig. 6.15 Electricity production from solid biofuels in the EU-27 (2018–2020) (excluding charcoal). (EurObserv'ER, 2021b)..... 126

Fig. 6.16 The share of renewable energy in total gross final energy consumption in the EU zone (2020). (EurObserv'ER, 2021a) 127

Fig. 6.17 The share of renewable energy in gross electricity consumption in EU zone (2004–2020). (EurObserv'ER, 2021a)..... 128

Fig. 6.18 Distribution of additional electrical capacity connected in EU-27 (2020). (EurObserv'ER, 2021a) 129

Fig. 6.19 Share of renewable energy sectors in electricity generation in the EU-27 (2020). (EurObserv'ER, 2021a) 131