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Alain Nadaï *Editors*

Renewable Energies and European Landscapes

Lessons from Southern European Cases

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Part I
Conceptualising Renewable Energy Landscapes

Chapter 1
Emerging Renewable Energy Landscapes in Southern European Countries

Marina Frolova, María-José Prados, and Alain Nadaï

Abstract We explore the process of emergence of renewable energy landscapes in various countries in southern Europe, focusing on the tensions this has caused, on the role of the institutional settings in the different countries and on evolving landscape values and approaches. We present a thorough analysis of the heterogeneous and multidimensional process of construction of energy landscapes and explore the different kinds of energy landscape emerging today. We then explain the structure of the book and conclude by setting out some of the challenges ahead for renewable energy planning.

Keywords Landscape practices • Landscape values • Renewable energy landscapes • Processes • Territorial planning of energy • Southern Europe

1.1 Introduction

The recent emergence of EU climate and energy policy has triggered a spectacular growth in renewable energies. Their rapid expansion in southern European countries is largely due to favourable national policies, based on quantitative targets and economic incentives (feed-in tariffs) as well as more or less favourable social, institutional and political conditions. Over a decade, decentralised energy infrastructures have spread through rural areas, transforming the physical

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landscape. This has raised issues regarding landscape practices and the values that were or should have been associated with landscape protection. These infrastructures have often been a source of tension, triggering the emergence of new attitudes towards landscape and of new stakeholders in the energy sector. Support for or opposition to the development of these new energies and the transformation of everyday landscapes has varied greatly depending on the country.

The role of landscape practices and values in spatial planning and permission processes, with varying degrees of public participation, has yet to be thoroughly analysed. Analysts in northern European countries have investigated these processes and their impact in countries such as Denmark, Germany, the Netherlands and the United Kingdom. Several recent books have explored the economic, environmental and landscape implications of the development of renewable energies, the issues they raise for planning and social acceptance (Szarka 2007; Strachan et al. 2009; Devine-Wright 2011; Bouneau et al. 2012; Szarka et al. 2012; Stremke and van den Dobbeisteen 2012) and even their technical dimension (Carriveau 2012). Yet the experience of southern European countries has not been explored and subjected to transnational comparison to the same extent.

This book intends to fill these gaps by analysing the situation in southern European countries, focusing particularly on landscape issues. The book provides an interesting insight into the relations between different types of landscape culture, degrees of political centralisation, renewable energy development processes and renewable energy landscapes. It includes case studies from Spain which have so far not been presented to English-speaking audiences in spite of Spain's leading role in renewable energy development. It explores the processes through which renewable energy landscapes have emerged in different southern European contexts and examines the lessons to be learnt by comparing the development of different renewable energy technologies in southern Europe and its relationship with landscape changes. It focuses not only on wind power, often the main subject of books dealing with the impact of renewable energy technologies on the landscape (Pasqualetti et al. 2002), but also provides a round-up of current research into the landscapes being produced by other forms of renewable energy, such as solar photovoltaic, solar thermoelectric, hydro and biomass energies, including biofuel and biogas. The book has been written by a multidisciplinary team and covers a wide range of social, cultural and political aspects of the relationship between renewable energy and landscape. The 13 case studies carried out by researchers from Spain, France, Italy and Portugal analyse these questions on different political and geographical scales, relying on a wide range of disciplinary approaches, such as history, geography, sociology and anthropology (actor network theory, sociological and anthropological qualitative studies), GIS-based approaches and landscape assessment methods.

On the basis of case studies from these countries, the book explores the institutional and social processes through which renewable energy landscapes have emerged. It analyses the way in which and the extent to which the development of renewable energies has affected landscape forms and whether or not it has contributed to a reformulation of landscape practices and values. France is considered here as a southern European country, given the common roots of the landscape concept

in the Romance languages and various similarities in social practices and public policies related with landscape (Martinet 1983; Brunet 1995; Frolova et al. 2003).

The chapters explore the landscapes that are now emerging with the development of renewable energy technology in diverse geographical contexts – mountain, plain and coastal areas – and explain the differences between exceptional protected landscapes and the more 'normal' landscapes we encounter in our everyday lives. The authors demonstrate that landscape is both an aesthetic issue in the spatial planning of renewable energies and an object that is deeply embedded into local practices. The book shows that there are strong differences in the development of the different renewables as well as in their effects on landscapes.

Spain is a particularly striking example, given the huge strides it has made in hydro, wind and large-scale solar power development. Seven chapters of the book are dedicated to the effects of this development on Spanish landscapes and planning practices. Italy also provides interesting case studies on how hydro, solar power and agro-energies (biomass, biogas and biofuel) have been reshaping Italian landscapes, including the changing relationship between communities and the territory in which they live and work. The Portuguese case study highlights the various extents to which the development of wind farms in communal lands in Northern Portugal has contributed to empower local communities. Case studies from France point to the problems raised for French national landscape protection policy by the development of decentralised renewable energies. Last but not least, there are case studies that provide a historical outlook on the construction of certain renewable energy landscapes – notably, hydropower landscapes.

1.2 Emerging Renewable Energies in Southern European Countries

Since 1990, many European countries have adopted and implemented policy frameworks in order to initiate a transition to more sustainable energy systems. These have often included ambitious renewable energy support programmes, such as feed-in tariffs. In 2001, the European Union implemented its first renewable electricity directive. This was followed in the mid-2000s by the application of several directives aimed at liberalising the electricity sector and allowing new entrants to produce and sell new types of energy. In 2009, new renewable energy regulations were established as part of the 'third energy package', which included mandatory targets for Member States in terms of energy saving (minus 20 %), renewable production (20 % of EU final energy consumption) and the reduction of greenhouse gas emissions (minus 20 %) by 2020. The overall EU target of 20 % final energy consumption from renewable sources by 2020 was allocated to the different Member States according to their current mix and potential for contribution. In southern Europe, the targets vary from 17% in Italy and over 20 % in Spain and France to 31 % in Portugal. While these targets are subject to constant evolution, as has happened in

Table 1.1 Cumulated installed wind power capacity in various southern European countries (MW)

	2000	2005	2010	2013
Italy	363	1,639	5,814	4,630
France	48	873	5,979	7,821
Spain	2,296	10,095	19,706	22,785
Portugal	No data	1,047	3,863	4,630

Sources: France: SER, L'énergie éolienne en France – Panorama 2013, http://www.enr.fr/docs/2013122234_SERCarteEolien20132.pdf, consulted 2014-07-08; Italy: Gestore Servizi Energetici, Rapporto Statistico 2012. Impianti a fondi rinnovabili. Settore Elettrico, www.gse.it, consulted 2014-07-29 and The European wind energy association. Wind in Power. 2012 European statistics, February 2013, www.ewea.org, consulted 2014-07-29; Spain: Comisión Nacional de los Mercados y la Competencia, http://www.cnmc.es/; Portugal: Direcçao Geral de Energia e Geologia. Renováveis, Estatísticas rápidas, 2014, n° 106, consulted 2014-07-29

the recent 2030 EU framework (UE 2014),[1] they have already led Member States to define, adopt and implement ambitious renewable energy policy frameworks, which have had profound social, economic and environmental consequences (Warren et al. 2012). For instance, feed-in tariffs for renewable energies – most often wind power or solar PV – have been introduced in Spain (1994–1997), France (2001), Portugal (2001) and Italy (2005).

While successful, the development of renewable energy capacity has been influenced by a range of complex cultural, contextual, socioeconomic, political and physical factors (Ellis et al. 2007), which have made it rather uneven, with the pace and the extent of development varying greatly from one Member State to the next, as can be seen in the countries we have analysed (see Table 1.1).

Apart from the obvious need for an abundant supply of the resource, other important factors in the development of renewable energy include the type and the scope of financial support systems, the form of development and the extent of benefit sharing (whether cooperative or through private developers) (Bolinger 2005; Meyer 2007), the values attached to landscape quality and preservation. The approach to spatial planning and its ability to take into account existing landscape practices, public participation and local potentials has also been important (Nadaï 2012; Labussière and Nadaï 2014; Toke et al. 2008; Wolsink 2007). In several southern European countries, the absence of conventional energy sources, the significant dependence on imports (e.g. Portugal on oil, Spain on gas, etc.) coupled with the significant and underexploited renewable energy resources (e.g. solar, wind) and the progressive emergence of leading industrial actors in the renewable energy technology field (e.g. Spain's wind turbine manufacturers Gamesa and Ecotecnia) have also been supporting factors.

[1] While increasing the overall EU target to 35 % of EU final energy consumption, this document does not allocate mandatory targets.

1.3 Increasing Tensions and the Debated Role of Institutional Settings

The development of renewable energy capacity has raised tensions and issues in many countries. One tangible consequence of this development has been the transformation of rural landscapes. Energy planning systems, which are often based on engineering and economic considerations, are difficult to match with land-use planning, especially on a local scale. In many European countries, spatial and energy planning cannot deal with such changes without reconsidering in one way or another the values, representations and practices on which they are based (e.g. Cowell 2009, for Scotland; Nadaï and Labussière 2012, for France; Wolsink 2010, for the Netherlands; Soderholm et al. 2007, for Sweden; Smith 2007, for the United Kingdom; Nadaï et al. forthcoming, for Germany and Portugal; Frolova Ignatieva et al. 2014, for Spain).

The situation in southern Europe has not been analysed to the same extent. Spatial and energy planning systems vary from one country to the next. In Spain, energy planning is the responsibility of the Central Government, although the regions play a very important role in the decision-making process. Local governments (municipalities) on the other hand play only a secondary role in the authorisation procedure, which at times has resulted in a lack of awareness of project development and the absence of strong opposition to renewable power projects (Frolova and Pérez Pérez 2011; Iglesias et al. 2011). In France, in spite of a recent move towards regionalisation, energy planning remains a State prerogative. Spatial planning is in the hands of a multilayered range of territorial entities, from municipalities to natural regional parks or regional authorities. Yet permit authorisation, the responsibility of the local administration (department Prefect), continues to be an essential prerequisite for renewable energy project development. While including provisions for public participation, such as a public inquiry or the possibility to petition the local State representative, the channels and the framework within which this participation takes place have been the subject of criticism (Nadaï and Labussière 2009 and forthcoming).

A number of research papers have shown how positions of support and objection to renewable energy projects are not constructed merely out of a lack of awareness of the benefits provided by renewable energy development, scepticism towards the technology or a disagreement about the proposed location of a specific project. They also reflect wider disagreement about cultural values and institutional settings (Aitken 2010a; Aitken et al. 2008; Ellis et al. 2007; Devine-Wright and Devine-Wright 2006; Haggett and Toke 2006; Nadaï and Labussière forthcoming; Woods 2003).

Renewable energy projects impact on many different fields. As this book shows, they can affect tourism (Chap. 7 by Frolova et al. and Chap. 8 by Briffaud et al. in this volume), landscape or biodiversity protection (Chap. 5 by Labussière and Nadaï, Chap. 10 by Afonso and Mendes, Chap. 12 by Desshaies and Herrero-Luque and Chap. 13 by Iranzo-García et al. in this volume), the protection of natural and