

# **Special Session: The impacts of green energy policies on the transformational processes within the context of the contemporary rural landscape. A comparative analysis of three European national and regional scenarios (France, Italy and Spain)**

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## **PRESENTATION 1**

### **Introduction: The main scientific challenge for the session, and the European legislation context**

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In several European countries, the coming into force of the EU policy concerning renewable energy regulation (*Livre vert de l'Union Européenne « Vers une stratégie européenne de sécurité d'approvisionnement énergétique »*, COM (2000) 769 and *European Community Directive 2001/77*) has often led to excessive preoccupation with the achievement of the quantitative production objectives established in the *European Burden-Sharing Agreement* (June 1998 *EU Environment Council*).

Given that large-scale green energy power plants are often located in agricultural areas, the purpose of the proposed special session is to discuss the interactions between agriculture and green energy, as well as the reasons for their juxtaposition.

Ecological damage, as well as various emerging problems related to land use conflicts in agricultural contexts affected by this large-scale transformation process, have emerged in the last few years as a major topic of national and local public debate.

Moreover, the recent coming into force within most European countries of an important outline document and of the *European Landscape Convention* has led to the introduction of a new point of view on aesthetic and perception quality into the local, national and supranational collective debate about the material and non-material impacts of energy policy on the transformational processes of the rural landscape (cf. *ELC*, Article 6 – Specific measures, *D. Landscape quality objectives*).

Focusing on the relationships between the current energy policies (solar and wind power plants) in three major European countries and the transformational processes within the evolving context of contemporary rural landscapes, the following questions will be explored by the international scientists attending the four scheduled presentations:

- Is it possible to ascribe the reasons for the close relationship between green energy and agricultural production to the current crises affecting the agricultural economic cycle ?
- In the light of the recent political changes in green energy strategic orientation, may we consider the fulfilment phase of the European renewable energy burden-sharing standards agreement to be almost totally complete?
- Can we identify the emergence of new multi-scale political interest (European, national, regional, local) in landscape quality and not merely in simple quantitative management?

To provide an answer to these main questions, the special session will methodologically examine and compare three European examples in France, Italy and Spain. The proposed comparative analysis will particularly focus on the interdependencies between different supranational, national and local decisional levels in the field of green energy policy, and their relevant implications on current environment change within the three European countries. We intend to stress particularly the socio-economic, ecological and aesthetic points of view involved in the evaluation of the material and non-material impacts of green energy directives on the contemporary rural landscape. The analysis of each national case study will involve an examination of a particular regional scenario (*Région Centre* in France, *Regione Puglia* and *Regione Lombardia* in Italy, *Comunidad Autónoma de Andalucía* in Spain), as well as a site-specific solar or wind energy plant installation.

## **References:**

- Ausubel J.H. (1996) *The Liberation of the Environment: Technological Development and Global Environmental Change*. Daedalus Vol.125, No.3, Summer 1996, pp. 1-17
- Brennan T. (2000) « Energetics », id. (eds.), *Exhausting Modernity: Grounds for a New Economy*, New

- York: Routledge, pp. 41-54
- Dessai S. (1998) *A critic of the EU burden sharing agreement*. Change, No.47, May-June 1998, pp.13-16
- Dozier J., Marsh W. (1981) « Energy Processes on the Earth's Surface », id. (eds.), *Landscape: An Introduction to Physical Geography*, Reading : Addison-Wesley Publishing, pp.1-20
- Gohs R. (2009) *Energy as Spatial Project*. Landscapes of Energy. New Geographies Journal n.2 pp.7-10
- IPCC - Intergovernmental Panel on Climate Change (2011), *Special Report on Renewable Energy Sources and Climate Change Mitigation (SRREN)*, 11th Session of Working Group III Mitigation and Climate Change, Abu Dhabi, United Arab Emirates. 5-8 May 2011
- Illich I., (1974) *Energy and Equity*, London. Calder and Boyars Ltd., pp. 1-29
- Nadai A., van der Horst D. (2010). *Landscape of Energy*. Landscape Research. Special Issue, Vol. 35, No. 2, April 2010
- Odum H.T. (1974) *Energy, Ecology, Economics*. Mother Earth News, May 1974, pp.1-10
- Schöbel S., Dittrich A. (2010). *Renewable Energies - Landscape of reconciliation?*. Topos - Sustainability, No 70, March 2010, pp.56-61

## PRESENTATION 2

### The French national and regional context : Region Centre – Vallée de la Beauce

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#### National and regional legislation

The French regulations concerning national renewable energies policies have been strongly influenced by the national conciliation process, known as *Grenelle de l'environnement*, conducted from July 2007 by the French Ministry for Ecology and Sustainable Development. The working groups dealing with this conciliation process were formed of public and private national stakeholders, from the level of central government to that of local collectivities, and extended the major Sustainable Development principles to the various local levels of application (regional, municipal, etc..).

The target of reducing national fossil energy consumption by 38% and of obtaining 23% of total national energy production from renewable resources before 2020, has been the major challenge for the *Grenelle de l'environnement* Working Committees.

The national *Plan for the development of renewable energies with high level environmental quality*, which came into force in September 2008, provides a set of regulations specifically aimed at promoting the development of green energy production, and outlines the central and local administrations' strategies for achieving the scheduled objectives. The policy adopted by France's central Government of not excluding any type of green energy installation plant has nevertheless had an extremely large ecological and socio-economic impact.

#### Geographic and socio-economic data

The territory of the Beauce Plateau in the French *Région Centre* is characterised by intensive cereal production, which in the last thirty years has been combined with a bio-energetic exploitation system (Colza and Miscanthus). Since 2005 the local administrations have decided to shift towards a more specific wind power scheme, with the result that the plateau has become the leading national wind energy producer (471 MW of total production). After considering the possibility of converting two former military bases in Beauce Plateau agricultural areas, the regional administrations have adopted a new management strategy focusing on the construction of several large-scale photovoltaic plants. These new regional regulations have led to an increase in local public debate about the evaluation of the positive and negative effects of this new Directive-driven legislation, especially concerning the possible synergistic implementation of energy and agricultural policies.

#### References:

- Henrion, S. (2009). *Openfields – post-rural territories : example of la Beauce*, communication au 5th International Phd Seminar, Katholieke Universiteit, Leuven, 01 – 03 octobre 2009.
- Henrion, S. (2011). *La Beauce, propositions pour le débat Ville-Campagne* in Publication du colloque Infraville. Paris : en cours d'édition.
- République Française, Assemblée Nationale (2010), Mission d'Information Commune, *Rapport d'information sur l'énergie éolienne*. 31 mars 2010.
- République Française, Prefecture d'Eure-et-Loir, (2005) *Schéma éolien départemental*, 28 juin 2005.

République Française, *Loi de Programme n°2005-781* du 13 juillet 2005 fixant les orientations de la politique énergétique

République Française, Ministère de l'Ecologie, de l'Energie, du Développement Durable et de l'Amenagement du Territoire (2009), Direction Générale de l'Energie et du Climat. *Circulaire du 18 décembre 2009 relative au développement et au contrôle des centrales photovoltaïques au sol.*

République Française, Ministère de l'Ecologie, de l'Energie, du Développement Durable et de l'Amenagement du Territoire (2010), Commissariat Général Au Développement Durable, *Rapport Filières industrielles stratégiques de l'économie verte*, mars 2010.

République Française, Ministère de l'Ecologie, de l'Energie, du Développement Durable et de l'Amenagement du Territoire, *Plan de développement des énergies renouvelables à haute qualité environnementale*. Période 2009-2020, novembre 2008

République Française, Ministère de l'Ecologie, de l'Energie, du Développement Durable et de l'Amenagement du Territoire. (2008) Direction Générale de l'Energie et du Climat. *ZDE, les zones de développement de l'éolien terrestre*. Novembre 2008.

### PRESENTATION 3

#### **The Italian national and regional context: Regione Puglia – Parco Nazionale dell'Alta Murgia ; Regione Lombardia – Regione Rurale Padana**

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#### **National and regional legislation**

With a target of 3000 MW of Nominal Power to be provided by photovoltaic installations by 2020, the first Italian national regulation code on renewable energies, *Conto Energia 2005*, has led to considerable speculation related to the massive increase in the number of large-scale power plants. In September 2010, this legislation code was supplemented by the *National Guidelines for the authorisation of renewable energy installations*, drafted by the Italian Ministry for Economic Development. With an explicit reference to the *European Community Directive 2001/77*, which relates to the promotion of renewable energy production, to the *European Landscape Convention* and to the Italian *Code of Cultural and Landscape Heritage (Codice Urbani, 2004)*, these *Guidelines* seek "to regulate the authorisation process for the installation of renewable energy power plants and to ensure an appropriate integration of these installations into the landscape".

Between December 2010 and January 2011, the implementation of the *National Guidelines* led to the establishment by each Italian Regional Government of a range of site-specific regulations and of a management strategy and a local criteria classification to identify the suitable and unsuitable areas for renewable energy plant installations (*Regional Guidelines*).

The Apulia Region and the Lombardy Region Administrations have, in fact, promptly responded to this recent national regulation by listing areas unsuitable for the installation of green energy plants and formalising the *Regional Land Inventory of Renewable Energy Sources*. These actions provide a basis for working out site-specific policies for territory management and land use, with specific reference to the development of the rural areas.

#### **Geographic and socio-economic data**

Within the Apulia regional context, this new regulation frame has produced important consequences on the productive cycle of the agricultural and zootechnical enterprises located in the area of the *Alta Murgia* National Park, the first Italian Rural Park established in 2005 in the hinterland of the Mediterranean town of Bari. The partial conversion of agricultural production into agro-energetic crops, as well as the increasing production of biomass and biogas for green energy production by the zootechnical industry, have emerged in the last few years as two major activities spurred by the local Apulia institutions. They both represent a successful model of economic development for the agriculture and livestock farm enterprises in the *Alta Murgia* rural region, which has been traditionally marked by an intensive cereal production and livestock farming and which is now becoming an increasingly prominent player on the national green energy scene.

The organisation of a local district for agroenergetic production and of a regional cluster for renewable energies and energetic efficiency (*La Nuova Energia. Distretto Produttivo delle Energie Rinnovabili e dell'Efficienza Energetica della Regione Puglia*) is, for exemple, a major factor to thwart the economic crisis and the social isolation of the rural activities in the *Alta Murgia* area, as well as a solid platform to

construct a new model of direct interaction and participation between public and private local players.

In the case of the Lombardy Region, the principal regional resource is currently hydroelectricity, the traditional "leader" in local energy production, but, as the morphology of the whole area is complex and heterogeneous, there are a variety of renewable energy scenarios. In the last few years, as part of the new regional energy policy, a number of new production targets have been established; the focus is on the implementation of photovoltaic power and biomass production.

One of the more important strategic challenges here is that facing the Padanian Rural Region, an extended territory lying between the provinces of Bergamo and Brescia, on the northwest border of the Lombardy Region, and those of Lodi, Cremona and Mantua, on the south-eastern regional border. The traditional agrarian character of this geographic area is still evident in the economic and symbolic values of the local people and leaders, values which partly derive from its historically rich natural and cultural resources.

The area's flat morphology and strong rural nature were crucial factors in the recent construction here of large-scale photovoltaic plants and in the conversion of agricultural land into large biomass production operations; it is an increasingly prominent player on the national green energy scene.

#### References:

- Catalano M., Dell'Osso G. (2002), "Fonti rinnovabili di energia, inquinamento e impianti tecnici", AA.VV. *Studi per il Piano di Area dell'Alta Murgia*, Rapporto Finale, Parte III, "Economia, piani e politiche di sviluppo", Politecnico di Bari, Dipartimento di Architettura e Urbanistica, Bari
- Ente Parco Nazionale dell'Alta Murgia (May 2010), *Relazione del Piano per il Parco e del Regolamento del Parco Nazionale dell'Alta Murgia*, Bari
- Pellerano A., Pantaleo A., Tenerelli P., Carone M. T. (2007), *Studio per la valorizzazione energetica di biomasse agroforestali nella Regione Puglia, Relazione Conclusiva*, Dipartimento PROGESA, Università degli Studi di Bari, Bari
- Regione Lombardia, (2003) *Programma Energetico Regionale (PER)*, 21 marzo 2003 D.G.R. n. 12467
- Regione Lombardia, (2007) *Piano d'Azione per l'Energia (PAE)*, d.g.r. 15 giugno 2007, n. 4916
- Regione Puglia (2007), *PEAR Piano Energetico Ambientale Regionale*, Bari, maggio 2007
- Regione Puglia (2010), "Linee Guida per l'autorizzazione degli impianti alimentati da fonti rinnovabili", recante la individuazione di aree e siti non idonei alla installazione di specifiche tipologie di impianti alimentati da fonti rinnovabili nel territorio della Regione Puglia, Regolamento Regionale 30 dicembre 2010, n. 24
- Reho M. (eds.) (2009). *Fonti energetiche rinnovabili, ambiente e paesaggio rurale*, Milano, Franco Angeli
- Repubblica Italiana, Ministero dello Sviluppo Economico e delle Attività Produttive. (2010) *Conto Energia*, D.L. 8 luglio 2010, n. 105
- Repubblica Italiana, Ministero dello Sviluppo Economico e delle Attività Produttive, Ministero dell'ambiente e della Tutela del Territorio e del Mare, Ministero per i Beni e le Attività Culturali. (2010), *Linee guida per l'autorizzazione alla costruzione e all'esercizio di impianti di produzione di elettricità da fonti rinnovabili nonché linee guida tecniche per gli impianti stessi*, Gazzetta Ufficiale della Repubblica Italiana, n.219, 18.09.2010
- Viesti G. (2008), *Le Energie Rinnovabili in Puglia. Strategie, competenze, progetti*. In Quaderni ARTI (Agenzia Regionale Tecnologia e Innovazione Regione Puglia), n° 5, febbraio 2008, p. 16-54
- Zanchini E. (2010). *Smisurati giganti? La modernità dell'eolico nel paesaggio italiano*, Firenze: Alinea

#### PRESENTATION 4

##### **The Spanish example: Comunidad Autónoma de Andalucía - Alpujarra et Valle de Lecrín ; Comunidad Autónoma de Castilla y León - Comarca de "La Mudarra"**

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### **National and regional legislation**

Due to its ambitious policies Spain has achieved a very successful implementation of renewable power. Installed capacity of wind power in reached 19.959 MW in 2010 and that one of solar PV power augmented up to 4188 MW. The Spanish National Renewable Energies Plan 2011-2020 (PANER, 2010) seeks to keep increasing installed capacity of renewables up to 69844 MW by 2020: the target for wind power installed capacity is 38000 MW and for solar PV power is 13445 MW.

As wind mills and solar PV power plants are spreading in Spain, cultural preferences for country landscape have become an increasingly important factor in their perception, especially the first one, which is described by some opponents as “wind-farm monoculture”. Wind and solar powers have become an essential factor shaping the present-day Spanish landscape. In this context, more democratic forms of land-use policies emerged during recent decades clashed with hierarchical energy planning policy in Spain.

The renewables planning regime is related with energy, land use and landscape policies. The application of wind energy in Spain is a central government policy, but changing a zoning scheme is a regional political decision. Up until quite recently the prevailing model of spatial planning in relation to renewables development was hierarchical, authoritarian and functional. Land use is an autonomous regions policy, but at local level wind power promoters should respect local land-use plans. As far as Spain's landscape policies is concerned, in spite of essential changes due to application of the *European Landscape Convention*, which encouraged several autonomous regions to incorporate landscape as an important issue in land use regulation, they are still out of step with the development of renewable energy policies.

Like many other Spain's autonomous regions Andalusia has not introduced landscape as a transversal element in its energy planning zoning scheme, though the *Territorial Plan for Andalusia* (2006) devotes special attention to landscape in regional planning as a valuable resource for development of this region. The regional *Energy Law 2/2007* governs the promotion of electricity produced from renewable energies as well as energy-saving and efficiency in Andalusia, although there are no local examples of the landscape factor integration into wind or solar PV power planning in the Granada province.

### **Geographic and socio-economic data**

The Comarca of Alpujarra and Valle de Lecrín (Andalusia, Spain) consists of 38 municipalities (municipios) with a population of 52 thousand inhabitants. It is situated in the south of the Granada province, in the South-East of Spain. This *comarca* has a traditional agrarian character (agriculture based mostly on olive and orange production in the lower parts and on vine, olive and almond production in the upper parts), although the farming sector is currently in deep crisis. This area has recently been developed for tourism owing to its exceptional landscapes and natural, ethnological and cultural resources. Moreover, La Alpujarra forms part of the Natural and National Parks of Sierra Nevada.

The Comarca is well suited to wind and solar photovoltaic power development (in Andalusia average annual wind speed at 80 m o.s.l. is about 5.5-6.5 and average daily solar radiation is about 4.75 kWh/m<sup>2</sup>). There are a dozen wind power farms, with 309.3 MW installed in Granada, seven of them in the area, and a few other projects under development. As in many other Spanish rural areas characterised by depopulation and socio-economic problems, wind and solar power are seen as a way to increase income and to raise its economic activity, although a problem of a lack of coherent planning is raising conflicts with regard to land use and to natural and cultural resources management.

### **Conclusions: New problems and opportunities in Spain's rural environment**

In Spain, the social conflicts are not distributed equally in the territory because the planning process in each region it's different. Some tensions and conflicts are the consequence of the establishment of very broad objectives (as for example the straggle against the climate change), which are not accompanied by a realistic assessment of territorial and landscape potentials of specific areas where this infrastructures are placed, as in Andalusia. In others regions like Castilla y León local populations don't replay to this projects because they have not a territory and landscape concept about what is around them. Anyway wind and solar farms have been developed especially rapidly in rural areas characterized by the presence of this resource and grid connections.

The quick and disorganized siting process results in an intense transformation of rural landscapes. It generates tensions with local population in some cases (Andalusia) and indifference in others (Castilla y León). Proper land use and landscape planning and the improvement of the process of social participation could help to avoid many of these negative consequences of renewables development.

## References:

- Baraja Rodríguez, E., and Herrero Luque, D. (2010). "Energías renovables y paisaje en Castilla León: Estudio de caso", *Nimbus: Revista de climatología, meteorología y paisaje*, No 25-26., pp. 21-42.
- Frolova, M. (2010). "Landscapes, Water Policy and the Evolution of Discourses on Hydropower in Spain", *Landscape Research*, nº 35 (2), pp. 235-257
- Frolova M. (2010). "Los paisajes de la energía eólica: su percepción social y gestión en España", *Nimbus. Revista de Climatología, Meteorología y Paisaje*, nº 25/26, pp. 93-110.
- Frolova M., Pérez Pérez B. (2011). "New landscape concerns in the development of renewable energy projects in South-West Spain", in Roca, Z., Claval, P. y Agnew, J. (eds.): *Landscapes, Identities and Development*. Farnham: Ashgate Publishing, pp. 389-401.
- Frolova M., Pérez Pérez B. (2008). *El desarrollo de las energías renovables y el paisaje: algunas bases para la implementación de la Convención Europea del Paisaje en la política energética española*, Cuadernos Geográficos de la Universidad de Granada, No 43, pp. 289-309
- Gobierno de España, Ministerio de Industria Turismo y Comercio, (2010). *Plan de Acción Nacional de Energías Renovables de España (PANER) 2011 – 2020*, 30 de junio de 2010
- Junta de Andalucía, (2006) *Plan de Ordenación del Territorio de Andalucía 2006* (POTA)
- Junta de Andalucía, *Plan Andaluz de Sostenibilidad Energética 2007-2013* (PASENER)
- Merida Rodríguez M., Pérez Pérez B., Lobon Martin R., Frolova M. (2009). "Hacia la caracterización del paisaje de energías renovables", *Geografía, territorio y paisaje: el estado de la cuestión. Actas del XXI Congreso de Geógrafos Españoles* (Ciudad Real : 27-29 de octubre de 2009), Pillet Capdepón F., Cañizares Ruiz M., Ruiz Pulpón A. (eds.) Universidad de Castilla-La Mancha, pp. 1193-1210
- Mérida Rodríguez, M., Lobón y Martín, R. L. and Perles Roselló, M. J. (2010), "Las plantas fotovoltaicas en el paisaje. Tipificación de impactos y directrices de integración paisajística", *Nimbus: Revista de climatología, meteorología y paisaje*, No 25-26., pp. 129-154.
- Prados Velasco, M. J. (2010). "¿Energías renovables o agricultura? Un análisis de la percepción ciudadana sobre los huertos y latifundios solares en Andalucía", *Nimbus: Revista de climatología, meteorología y paisaje*, No 25-26., pp. 187-204.
- Wüstenhagen, R., Wolsink, M., Bürer, M. J. (2007), "Social acceptance of renewable energy innovation: An introduction to the concept", *Energy Policy*, Vol 35, No 5., pp. 2683-2691.