The Notion of *Landscape Acceptability* as a Potential Key Factor in a New Integrated Approach to Energy-Landscape Policy

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Since the beginning of the process aimed at achieving a shared European energy policy, various problems related to land use conflicts in agricultural contexts affected by large-scale green energy power plants have emerged within European countries as a major topic of national and local public debate. The examination and comparison of the relationships between current energy policies and the transformational processes of contemporary rural landscapes in two European regional contexts—the Beauce Plateau in France and the Alta Murgia region in Italy—suggests that a more transversal conception of both green energy and landscape policy may be needed. A hypothesis of working toward a *new integrated approach* to green energy and landscape policies emerges from the study, in addition to the potential to serve as the foundation for a set of *landscape acceptability* criteria for managing energy projects.

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Introduction

An Evolutionary Process toward a Shared European Energy Policy

Using a critical examination of the European legislative scenario as a starting point and seeing its evolution as a complex process that over the last two decades has led to the establishment of a common European energy policy, this article proposes to outline the influence that this process has had on the national and regional renewable energy frameworks of two European Union (EU) members: Italy and France.

To achieve our main goal, we outline a series of milestones in the historical process for the establishment of a common EU energy policy. This process can be briefly summarized by a series of two types of documents: green papers and white papers. *Green papers* are generally background discussion documents aimed at stimulating debate and consultation, whereas *white papers* are authoritative reports containing proposals for specific actions within the EU.

The first step, taken in 1995–96, toward the establishment of EU energy policy involved discussion and public inter-European consultations about the possibility for the EU to direct its member states toward a shared energy policy. More specifically, the focus was on the use of renewable sources in a general context of energy production and consumption. This initial step in the series of white and green papers set the stage for the publication of two fundamental documents that outlined a set of principles for a common European strategy and a future European energy action plan.

The first document, the 1997 European Commission (hereafter referred to in the text as the Commission) White Paper, was specifically intended to define and describe a set of principles regarding nondiscriminatory access to the energy market within Europe and to emphasize the need to improve the energy potential of renewable solar sources, in addition to biomass or biofuel production.[1] A few years later, the second milestone document was published—the Commission Green Paper of 2000—which discussed a number of critical issues for the European energy scene, reflecting on environmental concerns and questions regarding energy supply security. The political tensions created in the

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search for a shared energy agreement, and the lack of political consensus for the same, represented another central issue discussed in the Commission's 2000 Green Paper. Moreover, this milestone document proposed a new role for the European Community, which would extend its powers, providing it with some control over energy issues in member states. It also emphasized the need to begin a more profound and in-depth intra-European debate on the subject.

Nonetheless, it wasn't until October 2005 during the European Council of London that the concept of introducing a mandatory and comprehensive common European energy policy was approved. In the opening session, Tony Blair, President-in-Office of the European Council, indicated the need to establish a new common policy by outlining a series of problematic issues. He first emphasized that energy is a powerful tool that can be used to create a new economic strategy and improve Europe's competitiveness. Hence, he emphasized the need to overcome individual or simple bilateral ways of dealing with energy regulations and criticized the European haphazard, random approach to management of energy needs and priorities that had been in effect up to 2005. Renewing relationships between public stakeholders and energy suppliers and establishing shared approaches to clean technology, energy efficiency, and nuclear power were other central issues.

Therefore, the discussion launched at the 2005 European Council led to the publication of another milestone document—the Commission's 2006 Green Paper—which represented the first time that a viable operational approach to a common European policy was outlined, introducing a more specific set of political instruments, the implementation of which aimed at achieving various supranational projects. Three core objectives were established—sustainability, competitiveness, and security of supply—along with six priority areas, which included the opening of an internal EU energy market, with the consequent establishment of the European Energy Grid to tackle protectionism, and public support for the development of an energy mix with balanced use of all types of renewable sources. In this political scenario, one particularly important focus was on the need to transform Europe into a united forefront against climate change and a forum for discussion and experimentation with new research and technological innovations, in the context of the EU's Seventh Framework Research Programme (FP7 2007–2013).

The fundamental step that followed the publication of the 2006 Green Paper was the renowned Commission's 2007 Communication *An Energy Policy for Europe*, which introduced the two pillars of *safety* and *nonproliferation* for future management of nuclear energy production, as well as the well-known 20–20–20 targets, which refer to reduction of greenhouse gas emissions by at least 20% below 1990 levels by 2020, 20% overall reduction in energy use and consumption, and 20% renewable energy in the energy mix.

These same strategic goals were further discussed and developed in the Commission's 2010 Communication *Energy 2020: A Strategy for Competitive, Sustainable and Secure Energy*, which represents a relevant move forward in the evolution of the common European energy regulations. The aforementioned 20–20–20 targets were implemented, and five priorities were outlined:

— limiting energy use in Europe (with a focus on potential energy savings for buildings and transport, energy efficiency in the industrial sector, and ecodesign requirements);

— building a pan-European integrated energy market (free movement of energy based on the European Network of Transmission System Operators for gas and electricity);

— empowering consumers and achieving the highest levels of safety and security (with consumer participation in internal markets: suppliers, billing, complaint handling, and dispute resolution);

— extending Europe's leadership in the development of technology and innovation (high-performance low-carbon technologies, smart grids, electricity storage, biofuel production, and energy savings in both cities and in rural areas);

— strengthening the external dimensions of the EU energy market (including cooperation with Russia and North African nations, as well as with the International Atomic Energy Agency, in order to ensure a low-carbon, nuclear-safe future).

Toward an Integrated Energy-Landscape Policy

In the light of the historical developments that led to the current European legislative situation in terms of a common energy policy, this article examines the influence that this process has had on the national and regional renewable energy frameworks of two EU member states: Italy and France.

We focus particularly on the socioeconomic and aesthetic issues involved in the evaluation of the material and non-

material impacts of green energy directives on the contemporary rural landscape by analyzing two regional European scenarios: the Beauce Plateau in the French Région Centre (Central Region) and Alta Murgia National Park in the Italian region of Puglia. These two areas offer an interesting degree of comparability because both are intensive agricultural regions and important leaders in the production of green energy at the European level while presenting different ways of relating to their traditional landscapes. The Italian case falls within a system of protected areas (national parks), whereas the French one has historically been defined solely as a highly productive agricultural zone.

The first stage of the analysis examines the social impact of renewable energy projects in the context of the traditional rural landscapes of these two European regions. By *social impacts*, we mean the consequences that the material and immaterial changes created through the installation of green energy plants have on inhabitants' perception of the landscape (Gipe, 2002).

As the European Landscape Convention (ELC) outlined in 2000, the way in which the inhabitants perceive the "area" of their daily lives represents the foundation for establishing an effective democratic landscape policy. In fact, in conjunction with the ELC taking effect in most European countries, a new vision has been introduced in terms of the aesthetic perception of landscapes and evaluation of issues of quality [ELC Article 6: Specific measures, D. Landscape quality objectives (Council of Europe, 2000)]. These new political orientations have thus led to local, national, and international debates about the material and nonmaterial impacts of energy policy on the transformational processes of the rural landscape, as for example during the Eighth ELC Workshop, "Landscape and Driving Forces," held in Malmo in October 2009 (Session 1: Climate Change and the New Energy Paradigm).

The issue of the social perception of landscape thus involves consideration of a wide range of material and immaterial aspects (cultural, social, political, economic, etc.), which, in the light of the current and progressive actions to implement the ELC at national and regional levels, are best evaluated with an integrated approach.

Our hypothesis is that a synergistic accounting of all these various aspects leads us to a landscape-sensitive approach (Pinto-Correia, Gustavsson, and Pirnat, 2006), which, in turn, may contribute to the establishment of a new green energy policy that is able to cross the political divide between energy and landscape policies.

Pursuing along the pathway of the potential implementation of the ELC at the energy policy level, as it has been theoretically suggested by several European national governments at their individual regional levels, represents an important strategic development to be pursued at both the European and the national levels. It would be specifically aimed at finding a new compromise between the social demands of local populations for a high-quality living area (Luginbühl, 2001) and the technical and ecological requirements for development of the green energy sector, which has been established at the political level in order to achieve the production objective of 20% renewable energy by 2020 for all EU member states (European Commission, 2007).

Hypothesis, Main Questions, and Methodological Approach of the Analysis

Landscape Acceptability for an Integrated Evaluation of the Material and Immaterial Aspects of the Contemporary Rural Landscape

Following up these introductory statements, our fundamental hypothesis is that taking the social impacts of the diffusion of green energy plants within the rural landscape into account could lead to the construction of a new methodological approach to energy policies, creating a new point of view which specifically focuses on *landscape sensitivity* issues (Aiken, 1976).

This approach is meant to go beyond a consideration of solely environmental issues, such as ecological impacts and ecosystem protection strategies, and move toward a more complex perspective that includes issues of landscape *quality*. Alongside *diversity*, this should be considered as a "common resource" of European landscapes (ELC Preamble).

In the light of these considerations, our analysis is aimed at formulating a number of critical considerations that can function as a conceptual, interdisciplinary bridge to an experimental *landscape-energy* approach to policy. Our two case studies examine this idea at the national and regional levels and test its potential to establish a holistic vision and an interdisciplinary scope.

In fact, if the initial starting point is the need for contemporary European legislation and planning processes to adopt a new, efficient political tool able to encompass consideration of landscape issues within green energy regulations, then we must first consider the network of material and

nonmaterial elements (political, social, cultural, historical) that makes up the landscape *structure* (Spirn, 1998).

To outline a new policy framework for renewable energy management and planning, intentionally designed to integrate both the material and immaterial dimensions of the landscape, we intend to explore the notion of *landscape acceptability*.

This concept first allows us to state the need to go beyond consideration of only either social or ecological acceptability criteria. Second, it offers the possibility to synergistically take into account the different physical and symbolic aspects that are inherent to the *landscape approach*. In our methodology, the integrated evaluation of the social, economic, and aesthetic demands placed on the contemporary landscape by its own inhabitants and other local socioeconomic actors represents the fundamental dimension that must be considered when approaching analysis of the social impacts that green energy plants have on a rural landscape (Nadai and van der Horst, 2010).

As we test our main hypothesis in the contemporary evolution of two agricultural landscapes within the French and Italian national contexts, the rural areas of the Alta Murgia and the Beauce Plateau, the construction of an integrated methodological approach is aimed at creating an analytical framework that takes different indicators into account, whether ecological or socioeconomic, as well as a set of complementary quantitative and qualitative values. The analysis of different social concerns—for example, in regard to the different expectations that inhabitants have for energy projects, or the tensions and conflicts engendered by them (Mérida Rodriguez et al., 2009)—becomes the effective test for an experimental *multicriteria acceptability analysis* (Kangas, Store, and Kangas, 2005) capable of supporting the establishment of an integrated landscape-energy approach to policy. Hence, further considerations must be made regarding the type of agricultural production (whether agribusiness, extensive, or soilless), the evolution of energy production (in terms of quantity and quality), and social concerns, as highlighted in the local press and in interviews with local stakeholders, for example, during local elections.

Political Contradictions Concerning Agricultural Everyday Landscapes

In the process leading to the establishment of a multicriteria analytical approach to an integrated energy and landscape policy-making strategy, one very important factor is the acknowledgment of the social, economic, and aesthetic values of *everyday landscapes* (ELC Article 2: Scope), such as highly productive rural landscapes (Vidal, 2011) that have an intensive agricultural or energy function (energy crops).

However, some paradoxes seem to emerge when doing comparative analysis of current green energy and landscape policies, especially if we consider the great deal of attention paid to the "particularly worthy" agricultural landscapes in EU member states' recent national or regional green energy policies, as in the case of the Italian 2010 green energy national guidelines (Italian Ministry of Economic Development, 2010). This term *particularly worthy* is a way of classifying areas that are more or less suitable for the development of renewable energy power plants (especially biomass crops, solar photovoltaic systems, and windmills) in accordance with a theoretically special or unique heritage landscape value. Nevertheless, this approach appears to conflict directly with the ELC method of evaluating the social and aesthetic quality inherent in *everyday life landscapes* (Pedroli, Van Elsen, and Van Mansvelt, 2007).

Moreover, the special orientation of the ELC toward the everyday agricultural landscape paves the way for a critical consideration of the contradictions that can be identified in political directives aimed at the establishment of green energy policies, and for those inclined to create a political framework for quality-oriented landscape policy that is less hierarchical or technocratic.

An example of this contradictory trend may be found in the methodological gap seen between the widespread model of a posteriori political evaluation of the social impacts of green energy projects and the need for an effective *participatory process* within the broader system of territorial governance. The need for such a political shift was first stated, more generally, in the 1998 Aarhus Convention (UNECE, 1998) and was subsequently theoretically established as a fundamental principle in national landscape management and planning policies after the ELC went into effect (Prieur and Durousseau, 2006).

Toward a Comparative Analysis of Two Contemporary Agricultural and Energy Landscapes in the Light of the *Landscape Acceptability* Criteria

Focusing on the notion of the *landscape acceptability* of green energy projects within two specific regional Euro-

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pean case studies (Figure 1), we first analyze the two selected examples and then present some important conclusions. These conclusions are indicated specifically in accordance with the contrasting or complementary aspects of the two agricultural regions in question.

Alta Murgia National Park in Puglia, Southern Italy

The framework of Italian national and regional renewable energy legislation

With its targets of 3,000 megawatts (MW) of nominal power to be provided by 2020 by photovoltaic installations, and 16,000 MW of wind power, the first Italian national regulatory code regarding renewable energy, Primo Conto Energia 2005–2007 [First Energy Feed-in Tariff (Italian Ministry of Production Activities, 2005)], followed by the Second Energy Feed-in Tariff 2007–10 (Italian Ministry of Economic Development, 2007[2]), led to considerable speculation regarding the massive increase in the number of large-scale power plants. In September 2010, this legislation was further supplemented by the *National Guidelines for the Authorization of Renewable Energy Installations*, drafted by the Italian Ministry of Economic Development. Making explicit reference to the European Community Directive 2001/77 (European Parliament and Council, 2001)—on the subject of renewable energy production—in addition to the ELC and the Italian *Code of Cultural and Landscape Heritage* (President of Italy, 2004), these national guidelines sought "to regulate the authorization process for the installation of renewable energy power plants and to ensure

Figure 1. The two proposed European case studies: the Beauce Plateau in the French Région Centre and the Alta Murgia National Park in the Italian Regione Puglia.

an appropriate integration of these installations into the landscape" (Italian Ministry of Economic Development, 2010).

Between December 2010 and January 2011, the implementation of these national guidelines led each Italian regional government to establish a range of site-specific regulations, as well as a management strategy and local criteria classification used to identify suitable and unsuitable areas for installations of renewable energy plants (Regional Guidelines).

In fact, the Puglia Regional Administration (2010) promptly responded to these national regulations by listing areas unsuitable for the installation of green energy plants and by formalizing the *Regional Land Inventory of Renewable Energy Sources*. These actions provided the basis for developing a site-specific model for an energy policy, tightly associated with territorial management and land use strategy, specifically in regard to the sustainable development of rural areas.

Green energy and agricultural production within Alta Murgia National Park

Within the context of the Puglia region, this new regulatory framework has produced important consequences for the productive cycle of the agricultural and animal-husbandry enterprises located within Alta Murgia National Park, the first Italian rural park, which was established in 2004 in the countryside outside of the Mediterranean town of Bari. The partial conversion of agricultural production to energy crops, as well as the increasing production of biomass and biogas for green energy production by the livestock industry (Pellerano et al., 2007), are two major activities that local socioeconomic actors have adopted over the last few years in order to counteract negative economic trends (Figures 2 and 3). These same negative trends have been seen over the last 20 years for agricultural/livestock sectors throughout the Mediterranean area (Hervieu and Thibault, 2009). For almost a decade, in combination with solar power plants, agroenergy crops have represented a successful model of economic development for the agricultural and livestock farm enterprises in the rural Alta Murgia region, which was traditionally known for its intensive cereal production and livestock farming but has now become an increasingly prominent player on the national green energy scene (Figures 4 and 5).

The activation of the Regional Guidelines since January 2011 (Puglia Regional Administration, 2010), and the simultaneous tightening of National Park regulations concern-

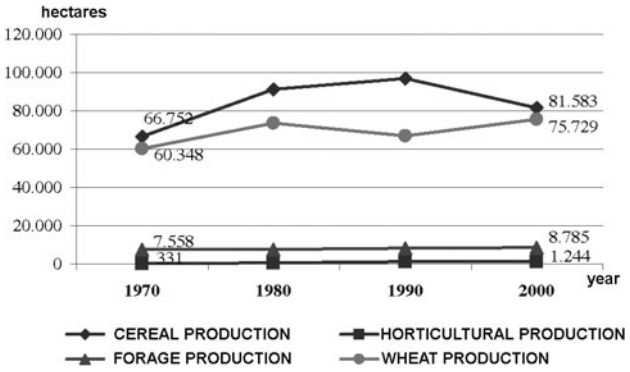

Figure 2. Evolution of different types of culture (cereal, forage, horticultural, and wheat, in hectares) between 1970 and 2000 in Alta Murgia National Park. Source: Alta Murgia National Park Administration (2010).

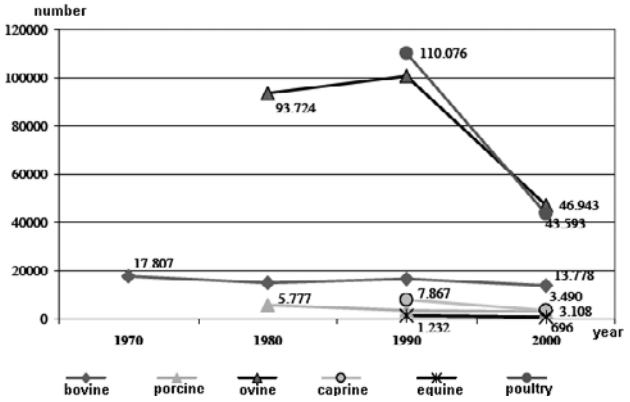

Figure 3. Evolution of different types of livestock farming (bovine, porcine, ovine, caprine, equine, and poultry) between 1970 and 2000 (in number of animals) in Alta Murgia National Park. Source: Alta Murgia National Park Administration (2010).

ing the spread of green energy plants in the rural landscape, has nevertheless generated an important, radical shift in the local and regional political strategy for achieving energy sustainability. The new strategy is aimed mainly at attempting to go beyond the previous political framework by supporting massive production of green energy at national level. Hence, a more strictly regulated authorization process for the installation of renewable energy power plants was introduced that actually prohibits the installation of large-scale energy power plants within agricultural lands and ensures that structures are integrated appropriately into the landscape.

This radical shift in regulations demonstrates that local administrators, at both the regional level and the protected-

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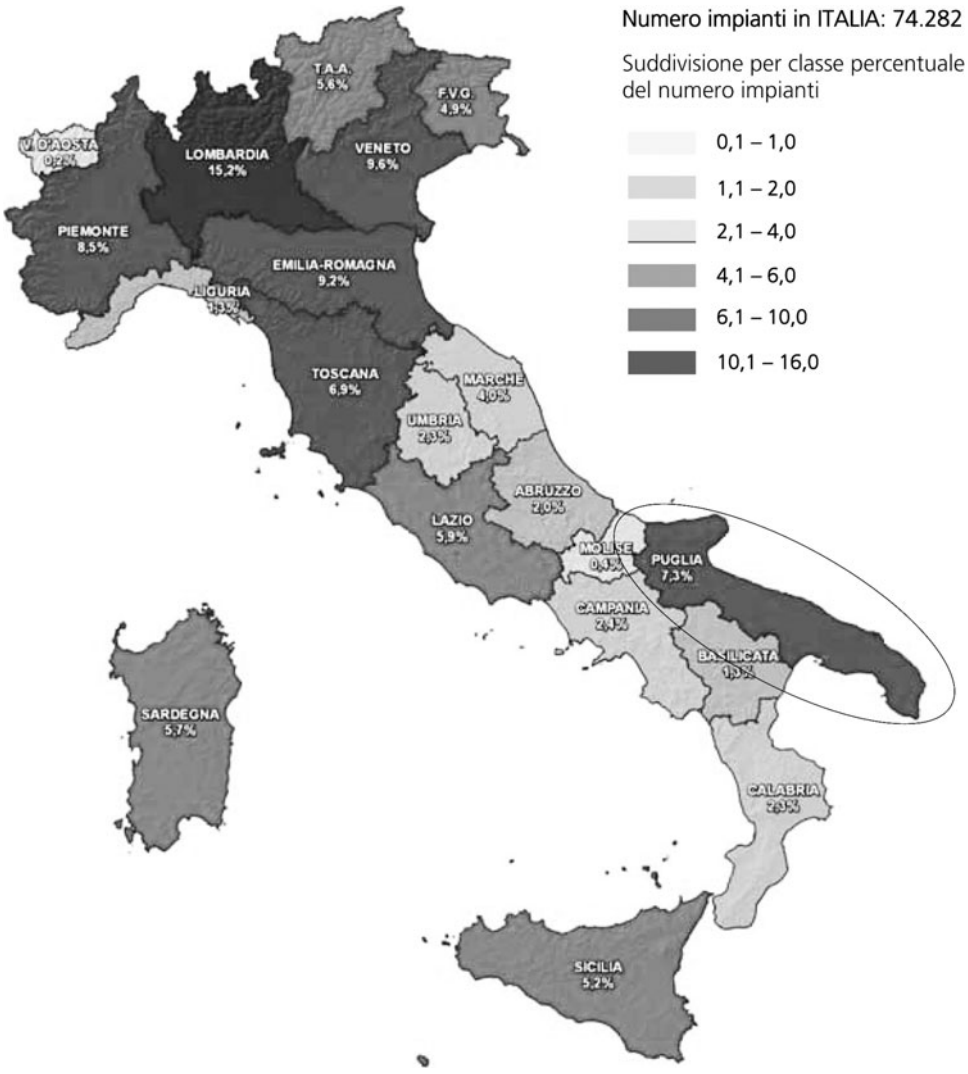

Figure 4. Regional distribution percent of the number of green energy power plants in Italy at the end of 2009. Puglia: 7.3%. Source: Gestore Servizi Energetici (2009).

area level, have taken important new steps toward achieving a more balanced and *landscape-sensitive* approach to green energy policies. The current state of green energy political strategy seems to have a dual focus, not only taking into account ecological damages and land use conflicts in agricultural areas affected by large-scale energy projects, but also examining the related landscape aesthetic issues.

Any technological device that would alter either the ecological balance or the "ground and landscape morphology" is banned throughout Alta Murgia National Park (Alta Murgia National Park Administration, 2010), especially in the case of high-density and tall-structure photovoltaic panel installations (10 m). They reflect light that might affect the way the Park's landscape is perceived and could create high-risk situations for drivers on local roads or for migrant fauna, as was already noted in the 2004 Institutional Decree of the National Park, referencing the pre-existing Natura 2000 Murgia Alta Site, which is also a Site of Community Importance and a Special Protection Area.

Although intended to guide local green energy policy toward a more balanced approach that takes landscape-sensitivity issues into consideration, specifically acknowledging the social expectations regarding the traditional rural landscape, as well as the future energy landscape, this renewed approach to regulation does not appear to

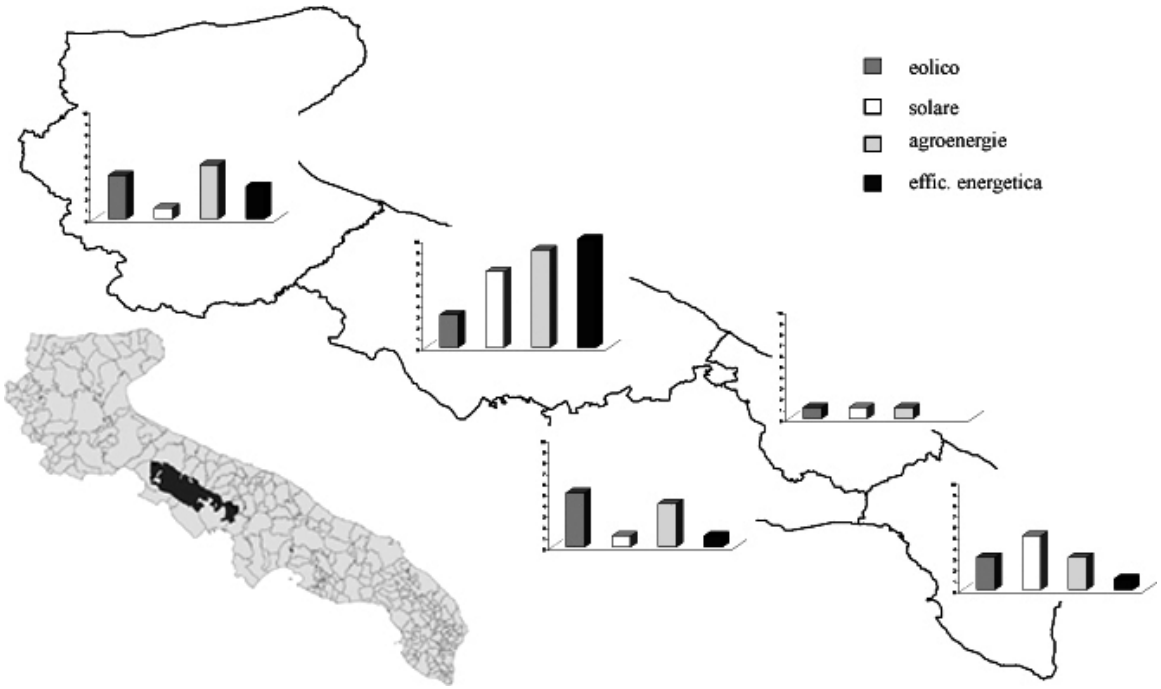

Figure 5. The localization of the Alta Murgia National Park and the territorial distribution of green energy farms, according to sector typology, in the Puglia Region (wind, solar, energy crops, energy efficiency). Source: Viesti (2008).

contribute to enriching the local policy approach. This is precisely why we deem it necessary to develop an experimental *landscape acceptability* analytical framework. By considering the social demands of inhabitants, while also evaluating ecological, economic, and aesthetic criteria, the local administration would be pushed to view Alta Murgia National Park not only in terms of the ecological and aesthetical heritage value it has as a protected area, but also and—most importantly—in terms of the social and identity value of its *everyday landscape*. This renewed approach to "everyday landscapes of energy" (Perrotti, 2012a) would entail a deeper level of analysis of landscape perception by different actors and, thus, examine the various aesthetic relationships established between the traditional image and current technological evolution of these rural areas. Indeed, integration of the social dimension into wider considerations about landscape quality issues in the Alta Murgia framework of green energy production would lead local political actors toward a more balanced, sustainable strategy for the evolution of this territory. It would also represent an opportunity for this important player in the energy landscape to become an experimental *common platform* where local public and private stakeholders could create an effective framework to guide future farming activities toward a new development process. By taking a strong and responsible role in the green energy production process, the *everyday actors* of the agricultural/livestock sector—a sector that consumes great quantities of energy and is responsible for about 20% of total worldwide CO_2 emissions—may become promoters of new models of territorial governance.

Furthermore, since the National Park Action Plan came into force in May 2010, the government has established two important pilot projects to involve local agricultural/animal husbandry entrepreneurs in a new territorial dynamic that aims "to support economic vitality and to promote a renewed model of sustainable management for the Alta Murgia National Park, in continuity with the local rural traditions" (Alta Murgia National Park Administration, 2010), The first pilot project, "Sustainable Animal Husbandry Relaunching," supports the reestablishment of the basic *multifunctional* condition of agricultural and livestock enterprises (Hervieu, 2002) through better integration of local traditional techniques and know-how, and is seen as a potential model for sustainable resource management and new forms of energy production. The second project, "The 21st-Century Alta Murgia Farm," aims to increase the visibility and touristic competitiveness of sustainable rural enterprises, which focus their economic ac-

tivities toward the actualization of the *image* of agriculture and livestock farming, thanks to the construction of a diversified green energy mix. In a wider territorial context, both of these experimental projects are also aimed at integrating traditional Alta Murgia farms into the organization of a new regional district that produces renewable energy and is able to meet energy efficiency criteria ["La Nuova Energia: Distretto Produttivo delle Energie Rinnovabili e dell'Efficienza Energetica della Regione Puglia" (The new energy: Puglia production district of renewable energy and energy efficiency), established in 2011]. These projects undoubtedly represent an important step toward curbing the economic crisis and decreasing the social marginalization of the "identitarian" rural activities of the Alta Murgia area (Magnaghi, 2011).

The Example of the Beauce Plateau in the French Région Centre

This natural region is known as *grenier à blé de la France* because it produces a large part of all the cereal crops in the nation, wheat and rapeseed in particular. Crops are mainly destined for exportation. However, over the last five years, this agricultural region has also become the French region that produces the largest amount of wind energy. As wind energy production becomes one of the symbols of the region, local initiatives for solar energy production are strong, and local decision makers are working to develop industries linked to the production of wind power technologies.

The framework of French national and regional renewable energy legislation

With targets of 5,400 MW from photovoltaic installations for 2020 (in comparison to the current 500 MW produced) and 25 GW from wind energy production (in comparison to the current 5,500 MW) established in the "Plan de développement des énergies renouvelables à haute qualité environnementale" (Plan for developing renewable energy high-quality environmental standard) (French Ministry of Ecology, Energy, Sustainable Development and Regional Planning, 2008), approved in November 2008 and the "Programmation pluriannuelle des investissements (PPI) de production d'électricité" (Plan for developing high environmental quality renewable energy) (French Ministry of Ecology, Energy, Sustainable Development and Regional Planning, 2009) approved in 2009, France has set itself a great challenge for the next decade. These quantitative objectives are also accompanied by qualitative ones that encompass more specific economic, social, political, and heritage considerations. National law requires wind turbine construction projects to conduct environmental impact studies to ensure respect for landscape and environmental quality. Since 2008, the Direction Regional de l'Environnement—the regional representative of the national government—has taken charge of defining these issues more specifically for wind and solar energy products, especially with regard to landscape and other nonmaterial issues.

Elements required at various decision-making levels for wind turbine construction projects

The national government gives a great deal of authority to its departmental representative, the Préfet, in terms of judging the quality of projects and their impact on environmental and landscape issues. The Préfet makes its decision only after the Zones de Développement Eolien (ZDE, wind development areas) has been established, which takes three issues into account. The first issue is a zone's wind potential, the second issue is the possibility of connecting the wind farms to the national electrical network, and the last consideration is protection of landscapes, historical heritage, and "particularly worthy" sites. However, only in 2005 did the creation of ZDEs became mandatory by law (President of France, 2005). Additionally, the creation of ZDEs has taken time. This meant that the *Schéma départemental éolien* (departmental wind plan) was not in place for most French departments until 2007. Before that, the regulations required only an *étude d'impact* (impact study) as envisaged for any type of infrastructural project with a notable impact on the environment. Since 1977, these impact studies have been obligatory for all sizeable infrastructural projects. Unfortunately, the content of these studies are vague and not meant for renewable energy infrastructure. In addition, they are for urban-planning regulation. To respond to the lack of special regulations for wind energy and solar energy infrastructure, the Central Government and the ADEME [Agence de l'Environnement et de la Maîtrise de l'Energie (Environment and Energy Management Agency)] proposed the "Guide de l'étude d'impact de l'environnement des parcs éoliens" (Guide to the impact study of wind farm environment), written in 2005 and updated in 2006, with the goal of adapting the vague regulations specifically to wind energy.

With the law of 2005 and the requirement to create ZDEs, local representatives of the national government have taken charge in determining sensitive sites and estimating project impacts. In our case study, the responsibility for creating ZDEs was at the departmental level, but this change occurred only recently, with the creation of a "Schéma Dé-

partemental Eolien" in 2008. At the regional level, the representative of the French State also takes an active role by publishing studies and documents that clarify the impacts of the national policy at a more local level. The Direction Regional de l'Environnement (Regional Directorate of Environment) for the Région Centre first completed a study on environmental and landscape challenges in 2005 for the installation of wind turbines in Beauce Plateau. After that study, the Regional Directorate of Environment for the Région Centre proposed its own guidelines for *études impacts pour les projects de parcs éoliens* (impact studies for wind farm projects) in May 2007 and then published a study on visual saturation of wind power projects in September 2007.

It is important to point out that a majority of wind farm projects were already completed or approved when the regulations regarding more specific targeting of *études d'impact* for wind power production came into effect. When it was drafted in 2008, the departmental plan for wind energy showed that 109 wind turbines had already been built, with another 85 authorized for construction. As the department's objectives are somewhere between a total of 200–220, only a small number of all constructed wind turbines will be affected by the more specific regulations (at least 6, up to a maximum of 26). Most of the criteria considered in approving construction are material and measurable. First, to protect local residents, construction must be at least 800 m from residential housing and must not exceed maximum noise levels. Second, for historic sites and buildings, as well as for protected flora and fauna, limits are established through the creation of zones and set distances. However, a third level of considerations does require evaluation of nonmaterial criteria, such as respect for the scale of the landscape, wind turbine saturation, and support for the landscape's "main lines".

Figure 6. New energy policies in Beauce.

Similarities with agricultural production policy

For the Beauce case study, it is important to note that wind energy production has not affected agricultural production. Solar energy production is also unlikely to create notable impacts for agricultural production, an area in which regulations are not yet precisely defined. However, in actuality, local actors have made specific decisions to produce renewable energy while fully respecting current agricultural production (Figure 6). This means that wind turbines and solar panels in particular cannot be built on existing agricultural fields. As the bases of wind turbines do not occupy too much agricultural land, wind energy was already compatible. For solar panels, the local actors have made a clear decision to not build solar farms on productive fields, so the possibilities for panels are limited to agricultural barns, houses, abandoned fields, or polluted areas (Henrion, 2012).

Most of the lands leased for windmill farms or the buildings on which solar panels are installed belong to the farmers. In this way, energy production complements agricultural production. Energy production is mostly viewed in terms of its economic value. Renewable energy was already commonly seen as being complementary to agricultural production in Beauce even before the construction of wind farms. In fact, rapeseed production for biofuel and miscanthus had already been authorized for fallow land for

Figure 7. Solar barns for drying miscanthus in front of miscanthus fields.

20 years without relevant consequences for agricultural production.

Finally, some farms have recently decided to shift all their production to renewable energy, producing only crops for biofuel or biomass and installing wind turbines on their less productive fields; they are mostly equipped with modern solar barns (Figure 7).

Conclusions

In regard to the Beauce case study, the main consideration still appears to be the issue of visual saturation of wind turbine parks and their perception as part of the local productive landscape, an issue raised by local communities since 2007. However, residents and social actors have never been opposed to the construction of wind power plants. Economic interest in wind turbine projects was the reason for such rapid development. With development now complete, the local authorities of Beauce have decided to use the image of renewable energy to change the perception of Beauce as a zone only for intensive agriculture. In fact, in order to support Beauce Plateau's identity as a *green* area, some local actors and decision makers have decided to establish an effective renewable energy industry in Beauce (Cluster Agrodynamic), dedicated to the local production of wind turbine components and the installation of transformational factories.

In the end, by merely taking advantage of what was once just an economic opportunity, Beauce could become an important area for green energy, whereas it was once known only for its intensive agricultural activity.

On the other hand, as we saw with the Alta Murgia National Park case study, a number of relevant questions arise from the integration of different stakeholders into the new regional Puglia District for Renewable Energies, as well as from the implementation of the two pilot projects, which support the adoption of a green energy production strategy by the local traditional farms.

In fact, to transform the green energy production of Alta Murgia agricultural and livestock enterprises into a solid platform for the construction of a new model of direct interaction and participation between public and private stakeholders, a true, effective participative bottom-up approach needs to be established that should go beyond the simple a posteriori evaluation of the social impacts of the diffusion of green energy plants and consist in the involvement of local social actors in the decision-making process. In our hypothesis, new policy instruments are needed today to update the current green energy production regulation system at both the local and regional scales in the context of rural Alta Murgia. If constructed using a *landscape acceptability* analysis with multiple criteria, it would represent a unique opportunity to establish a new, efficient model for sustainable evolution of the rural areas of Puglia. This model would be well worth considering for its ability to resolve the emerging problems seen in similar socioeconomic aspects of other rural environments.

As can be gathered from these conclusions, a critical aspect highlighted by the analysis of the two case studies concerns the lack of in-depth analysis at either the national level or the regional political level, of the influence of social perceptions regarding the diffusion of renewable energy projects in both of the two rural landscapes, especially in terms of

the different perspectives adopted by each social actor involved. The varied sizes of these green energy projects, which range from large power plants to small projects for networked energy production (for example, using a distributed generation model), notably influence the way that local inhabitants perceive the different impacts that these projects have on the landscape. And, in turn, the values attributed to the landscape by residents affected by the insertion of power plants play a central role in the social acceptance of these projects (Frolova, 2010).

The issues at hand raise a series of questions, which deal with the social impacts of renewable energy projects on the contemporary rural landscape. We believe that the search for appropriate answers will increase knowledge and stimulate further developments for our reflection on a possible integrated policy approach, including both green energy and landscape issues.

How can the different approaches to perception by rural residents, rural workers, and *new rural* populations be taken into consideration (Larrère, 2002) in order to establish a balanced and realistic framework for critical analysis of the social impacts of renewable energy on the contemporary rural landscape? Could the analysis of social concerns (e.g., different expectations of inhabitants for energy projects, and the tensions or conflicts engendered by them) be viewed as a methodological bridge between landscape and energy policies? How and how much do exterior romantic and bucolic images, projected by the urbanized population on the contemporary periurban or deeply agricultural countryside, influence the debate on the social acceptance of renewable energy landscapes within the rural context (Perrotti, 2012b)? Finally, can we effectively consider green energy production within the contemporary agricultural landscape in the perspective of a new economic reorganization of the agricultural and livestock sectors (Reho, 2009), as promoted by local institutions in order to counteract the economic and social crises affecting some rural regions? In this case, which methodological instruments would enable us to cross the professional divide between environmental and social scientists, and between the practitioners, the world of science, and various local actors?

At the end of our comparative analysis, the use of open questions enables us to shed light on the contemporary, relevant issues of environmental, socioeconomic, and cultural acceptability of renewable energy projects. As an example, the following conclusive questions are intended to pave the way toward a more holistic vision of the integrated landscape-energy approach presented in this article; thus, they help in envisioning new perspectives for future research:

— Firstly, can we consider renewable energy projects within the European rural landscape as a potential new social platform to implement direct interaction between public and private local players, and to move toward a more participative, balanced model of sustainable territorial development?

— In other words, could establishing processes for *landscape-sensitive* renewable energy projects represent an important contemporary laboratory to propose and experiment with a new integrated approach to sustainability?

— Finally, would a *truly* participative process for establishing green energy be able to demonstrate that environmental concerns are not the only important issue to be considered but rather must be considered as a function of their interaction with socioeconomic issues of landscape quality?

Notes

1. Soon after that, the European Burden-Sharing Agreement, ratified by the European Council in June 1998, introduced for each member state a system of limits for differentiated emissions (Dessai, 1999).
2. More recently, the Primo (First) and Secondo (Second) Energy Feed-in Tariffs were followed by the Third (2010–11), Fourth (2011–12), and Fifth (2012–13) Energy Feed-in Tariffs (Gestore Servizi Energetici, n.d.).

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