Not without the people

Public engagement with renewable energy in Portugal

Worldwide the transition to an energy system increasingly reliant on renewable energies has become an important policy goal. Technologies such as solar and wind power tend to muster a strongly favourable public opinion. Nevertheless, they are not entirely impact or controversy free. This paper addresses some of these issues by examining the case of Portugal.

Ana Delicado

PhD in Sociology, works mainly in the social studies of science. She is currently a Research Fellow at the Institute of Social Sciences of the University of Lisbon. 2013 Visiting Fellow at the Institute for Advanced Studies on Science, Society, and Technology (IAS-STS) in Graz. She is coordinating a research project on the sociotechnical consensus and controversies about renewable energies in Portugal (www.renergyproj.ics.ul.pt).

E-Mail: ana.delicado@ics.ul.pt

Renewable energies

Renewable energies are generally seen as a key resource for energy transition: a clean and sustainable replacement for fossil fuels, a crucial tool in the mitigation of climate change and in achieving national self-sufficiency in terms of energy. In line with the Europe 2020 strategy, that sets a target for 20% of energy from renewable sources, countries have been investing heavily in these technologies. Unlike other energy production technologies (such as nuclear or coal power plants), solar and wind power are generally construed and perceived as "clean", "green" or "environmentally friendly".

However, renewable energies have brought about significant changes in the landscape of rural areas, namely by placing "machines in the garden": wind turbines, solar panels, biomass power plants. So how does the public react to these changes? Is the support to renewable energies consensual and unconditional?

Renewable energy in Portugal

Due to favourable natural conditions and a strong political investment in the past decade, Portugal is one of the leading countries in Europe in terms of renewable energy. In 2011, according to Eurostat, the share of renewable energy in gross final energy consumption in Portugal was already 24.9%, surpassed only by the Nordic and some Baltic countries (such as Sweden, with 46.8%, or Latvia, with 32.5%) and Austria (30.9%) (compare fig.1). This high share is mainly due to hydropower (responsible for 48% of energy from renewable sources) but wind power is not far behind (41%) and has experienced a very fast growth since the beginning of the century (in 2002 its share was just 2%). Despite some of the largest number of sunshine hours in Europe, solar energy has been slow to take off in Portugal, representing just 1.3% of renewable energy.

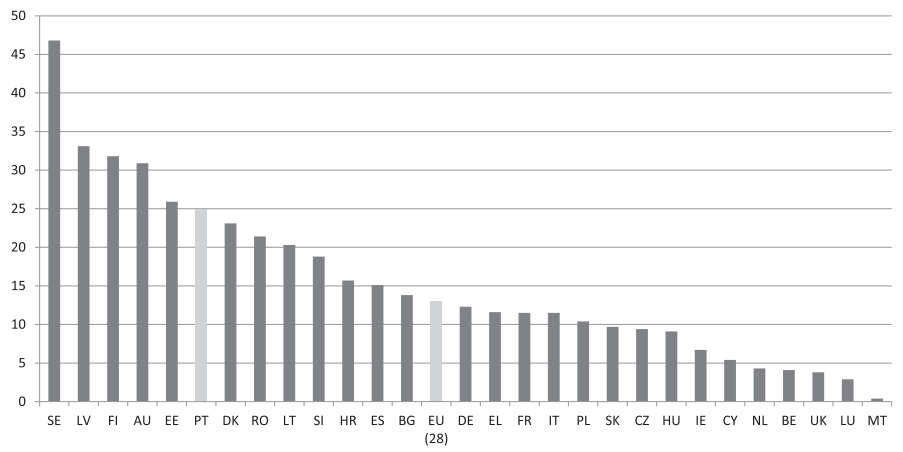
The growth of renewable energy in Portugal has mainly been due to concentrated, not distributed, production: large-scale dams and wind farms. Even photovoltaic solar power plants produce close to double the energy of microgeneration. And unlike what happens in countries such as Denmark or Austria, ownership of renewable energy production facilities is dominated by big companies: for instance, the former national electrical company holds 50% of the market share in renewables (source: Energias Endógenas de Portugal, http://e2p.inegi.up.pt).

Currently, there are close to 230 wind farms in a country of just 92 thousand square kilometres of land (compare fig. 2). Their size ranges from just a handful of turbines to large parks with 120 turbines. The majority are located in the mountainous areas of the north and centre of the country. There are just 21 solar power plants (almost all in the south of the country) and only one of a sizable dimension (250 ha, producing 45MW): all others produce less than 15MW. Wind farms and solar power plants bring economic revenue to local landowners and municipal authorities, but local populations have no direct benefit from them, for instance in terms of the prices of electricity, since all power generated is fed into the national grid.

Public participation in renewable energy

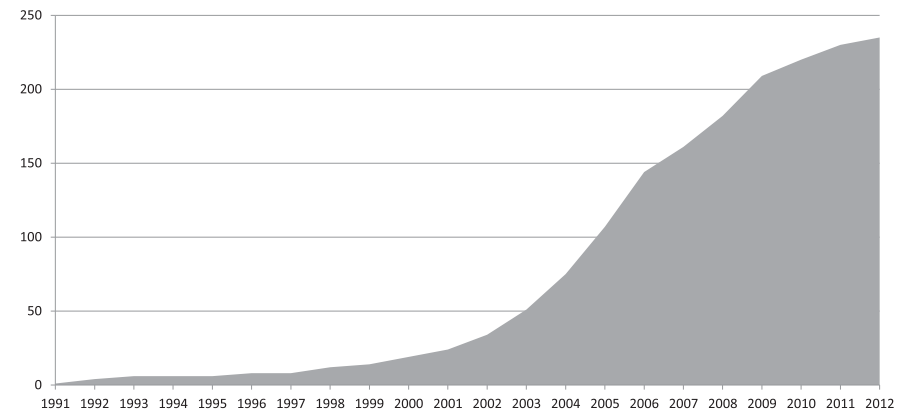
Throughout Europe, the decision to increase the role of renewable energies was met with a fair dose of social consensus. Though there has been no referendum on

Fig. 1: Share of renewable energy in gross final energy consumption, 2011 (%)



Source: Eurostat, 2011

Fig. 2: Number of windfarms in Portugal



Source: E2P, INEGI, http://e2p.inegi.up.pt/

this issue (unlike what happened in some countries regarding nuclear energy), European-wide surveys, such as Eurobarometer, routinely show that the public is strongly in favour of renewable energies, in particular solar and wind energy (see, for instance, EC 2007). 80% of Europeans state that they are in favour of solar energy, but variations by country range between 95% in Denmark and 70% in Latvia. As to wind energy, it musters the support of 71% of Europeans, more strongly again in Denmark (93%) and less so in Italy (63%). In both cases Portugal falls slightly below the European average, with 77% supporting solar power and 70% wind energy.

However, at the local level, much attention has been paid to the opposition to the siting of energy generation facilities, in particular wind farms. Several case studies have been conducted on the perceptions and attitudes of local residents, authorities and civil society organisations when faced with the possibility of having a wind farm in the vicinity. Though planners often dismiss this opposition as a manifestation of NIMBY (Not-In-My-Backyard) reactions, social scientists have been demonstrating that populations are often motivated by feelings of place attachment and identity, by perceptions of fairness, transparency and environmental justice, by lack of confidence in government and companies and by mistrust in planning procedures (see, for instance, Walker 1995; Devine-Wright 2005; Bell et al. 2005; Jobert et al. 2007; Wolsink 2007; Devine-Wright & Howes 2010). Nevertheless, local opposition does not necessarily translate into unfavourable planning decisions and it has also been shown that acceptance of wind farms tends to grow over time, after they have been built (Bell et al. 2005; Devine-Wright 2005; Warren et al. 2005; Wolsink 2007).

Even within the environmental movement, wind farms are a somewhat contentious subject. In what Warren et al. (2005) call a "green on green" controversy, some environmentalists support wind farms because of the clean energy they generate, others oppose them due to impacts over landscape and others still are in favour of renewable energy in general and against particular wind farm proposals.

In Portugal, the tradition of centralised bureaucratic decision-making has been put into question by the obligation to follow European directives regarding environmental impacts (Gonçalves 2000). Wind farms over a certain size (in terms of the number of turbines) or located in protected areas are required to undergo an Environmental Impact Assessment (EIA) that includes a period of public consultation, in which individuals and organisations are invited to view a non-technical report describing the characteristics of the wind farm and to send in written comments. Unlike other European countries, where regional or local governments have more power, the decision to allow or reject the planning application is then made at the national level, by the Environmental Agency. Solar power plants are exempt from EIA, since they are believed to pose no significant environmental risks.

An analysis of the public consultation files in these wind farms EIA shows that the participation of civil society is not very frequent (Delicado et al. 2013). In almost half the cases no comments were received from local civil society stakeholders. This may mean that these wind farms raised no concerns, but it may also be the case that construction plans and public consultations are poorly publicised and people do not get the chance of expressing their opinion. An important opportunity to harness local knowledge, at times even more valuable than expert knowledge (about wind direction and speed in particular locations, about important natural or cultural heritage that might be affected), may be lost.

When the public participates, comments are usually unfavourable, although many express an acceptance of the wind farm provided that mitigation measures are taken (such as avoiding placing turbines in particular locations). The arguments against wind farms expressed in these comments are much similar to the ones encountered in other countries: endanger-

ment of ecosystems and particular animal species, such as wolves, bats and birds; landscape degradation, with the inclusion of artificial technological elements in pristine natural settings; noise and its health hazards; devaluation of properties; negative impacts over rural and nature tourism. Favourable comments tend to highlight the role wind farms can play in local economic development in particularly deprived areas that in the past decades have experienced loss of population and the decline of agriculture.

After the construction of wind farms, the public has other forms of expressing opposition, for instance filing complaints and lawsuits, mostly motivated by noise pollution and by threats to wildlife. In some cases the decisions were favourable to the plaintiffs, forcing wind farms to shut off during the night or in particularly sensitive periods. In one case in the archipelago of Azores, these limitations resulted in the closure and dismantlement of a wind farm.

However, open opposition to wind farms is expressed only by a "vocal minority" (Bell et al. 2005) and there is some evidence that in some cases wind farms have become "landmarks" of the areas in which they are located. School groups go on educational visits to wind farms, sports and recreational associations organise tours on foot or by motor vehicle, and the wind farms are included in the list of local tourist attractions.

In the case of the largest solar power plant in the country, even though it was not mandatory, before its construction the local authorities held public meetings to discuss its advantages and impacts. Municipal revenue from the power plant was used to set up a technological park and launch an incentive scheme for microgeneration. And even though it failed to meet expectations regarding job creation, the solar power plant raised little criticism from the population and even became a part of local identity: the sun became the dominant feature in many local symbols, such as the municipal coat of arms, a pedestrian touristic trail around the solar power plant was set up and local chorus groups wrote and sang songs about the power plant.

Final remarks

This short overview has aimed to demonstrate two things. First, that even "green" technologies cannot be taken for granted as consensual and risk free. All technologies have some environmental and social impacts that ought to be acknowledged and managed. Even when the global benefits are huge, local costs must be taken into consideration.

Second, engaging the public in the decisions about technologies is crucial for increasing acceptance, dealing with resistance and mitigating negative impacts. Giving local residents and civil society organisations a voice can make the difference between opposing and learning to love "the machine in the garden".

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