

Renewable energy support policy in Spain: An analysis of the decision-making process (1994-2014)

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Daniel Leston

Delft University of Technology, Faculty of Technology, Policy and Management, Jaffalaan 5, 2628 BX, Delft, The Netherlands

1. Introduction

Spain is a country with a high potential for exploiting Renewable Energies (RE). Solar irradiation is among the biggest in the European Union (see Fig. 1) and there are localized areas distributed all along the country that endow high annual mean wind speeds. At the same time, Spain features a high dependence of conventional energy sources, such as oil and natural gas, which are imported from foreign countries in their majority. This contributes to a large extent to a negative commercial balance, which is a key factor in the country's slow economic recovery from the financial crisis experienced in the last years.

Traditionally, the promotion of Electricity from RE Sources in Spain (RES-E) has been driven by three policy goals, as identified by Linares and Labandeira (2013): decreasing the dependency of imported fuels, reducing the greenhouse gas emissions, and the introduction of a new industry sector, with all the socioeconomic benefits that this implies. A support policy was appropriate at a time, in 1994, when the degree of technology development could not bring the price per generated kWh in RES-E installations close to that of conventional energy sources, as it would foster investments in these facilities and help to fulfill the policy goals mentioned hereinabove.

From 1994 to 2009, and after numerous revisions, Spain had achieved an international recognition for its successful RE support policy, being even praised by US President Obama, who pursued an energy transition model for the US (Hendin, 2009). Despite the enthusiasm and the apparent perfection of this policy, in 2012 the newly elected Spanish government decided to stop backing RES-E with a moratorium on the support to new installations, which was followed in late 2013 with even more strict measures.

In this paper, the decision-making process behind the RE support policy will be explored in order to answer the following research questions: *"why has the policy-making process been revised so many times?"* and *"how can such a drastic change on the RE support policy be explained?"*

The answer to this question is quite complex, but as Linares and Labandeira suggest, it probably didn't have to do with the policy design, but rather with its implementation, which led to an uncontrollable debt towards the investors, who were promised too appealing conditions. As more and more investors were attracted, the guarantees from the government were increasingly more difficult to maintain. This debt ended up increasing the price of the electricity tariff, which is always received with discontent by a population who already struggle to survive in a convulse economic situation.

The structure of the paper is as follows: in section 2, the problem description will be further described and analyzed as an ill-defined problem. Section 3 provides an explanation of the decision-making network behind RE support policies as a conflict between actors with different values. Section 4 describes the chronological events in the policy-making process as a *Lindblomian* succession of limited comparisons. Sections 5 and 6 conclude the document by answering the research questions and formulating some recommendations for RE policymakers.

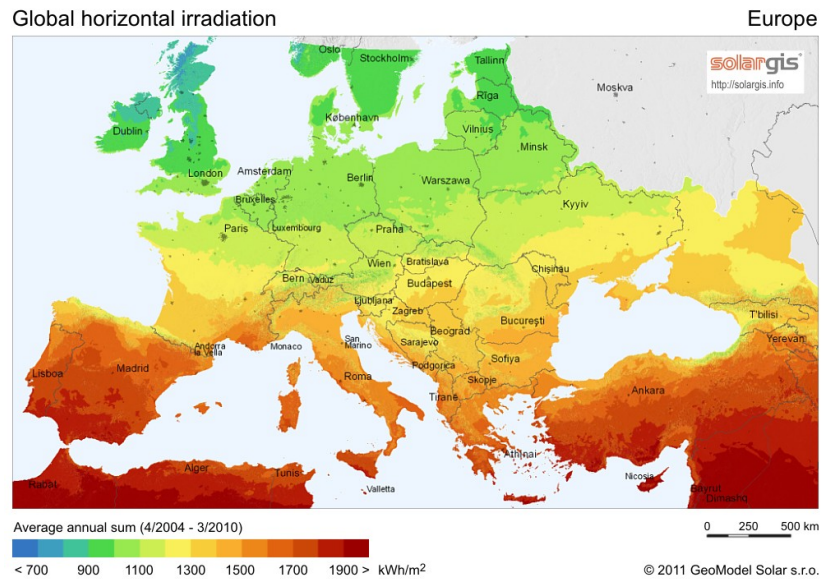


Fig 1. Solar irradiation in Europe. *Source:* SolarGIS © 2014 GeoModel Solar.

2. Problem description and analysis

In order to be able to answer the questions mentioned in Section 1, it should first be described the research problem as experienced by the Spanish government. The negative commercial deficit of the country during the years of the RE support policy process, as stated before, is mainly due to a negative energy commercial balance (see Figure 2). Such a dependency for polluting foreign energy sources is not desired at all while there is room for exploiting clean, indigenous sources. However, as much as the government would desire to get rid of these conventional energy sources (CES), the price per generated kWh of RES-E is still too high, especially when comparing it with its equivalent price for generating electricity with CES (CES-E). It is then a problem of the government to attract investments for the development of RES-E facilities, making competition against CES-E feasible.

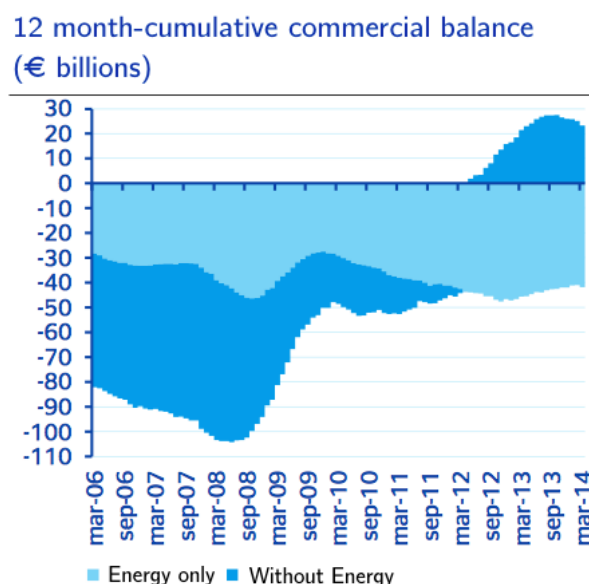


Fig 2. Impact of energy on the commercial balance (2006-14). *Source:* BBVA Research. Data from Customs Office

The problem at the beginning of the decision-making process is then defined as a gap between the portrayed situation back in 1994 and the desired situation. The formulation of the problem could thus be as follows: "How to attract investors to RES-E industry as a means to alleviate the energetic dependency of Spain?"

According to Rittel and Webber (1973), governmental planning problems are naturally ill defined, and they give ten characteristics of “wicked problems” that fit perfectly into the case. Two examples can be provided. First, as experience in this particular case has shown, there is no stopping rule for wicked problems. The lack of criteria to fully understand how the economics of energy work, together with the never-ending causal chains that are triggered by the implementation of any type of policy are the main reasons for it. Second, and related with the preceding example, there is no immediate or ultimate test of a solution to a wicked problem. The consequences of implementing one support policy or another are difficult to trace, falling outside the planner’s control, and extending over an unbounded period of time.

These two examples may in fact explain the extension of the RE support policymaking process over such a long period. Decision-makers, on their search for a solution for the above-mentioned problem, were trapped by its inherent wickedness, and what could seem at first as a one-go decision, was transformed into a process of policy revision, and ultimately to closing a process of successful-to-unsuccessful policymaking.

3. Understanding the decision-making network behind RE support policies

Policy-making is always likely to happen in a network-like environment. The need for support from key stakeholders, both inside and outside the government, make policymakers operate with caution in order to respect the unique characteristics of these networks. As De Bruijn and Ten Heuvelhof (2008, p.5) explain, “If the main societal players do not accept new policies, it will be extremely difficult to implement them”. This is explained by the variety of actors and interests present in the network, which can help to explain how policymakers come up with one policy or another.

The research conducted by Jenner et al. (2012) distinguishes between private and public interests when explaining which factors affect EU countries when developing RE promotion policies. According to the authors, actors who are affected by the regulation will try to influence the policy-making process according to their own preferences. As for the public interest, policymakers have the obligation of providing public goods such as employment and affordable energy. Therefore, a network is already established between interest groups, citizens and the government. Each of them perceives the problem described in section 2 differently. They may not even perceive unemployment or dependency on foreign resources as a problem, but instead consider the consequences of a RE support policy to be the problem. This variety of perceptions and interests makes policymaking an arduous task for the government officials.

Peltzman (1976) explains the adoption of regulation with three premises: First, the regulation redistributes wealth. Indeed, this is the case of the RE support policy, shifting investment from CES-E to their renewable substitutes, which can enable new producers to feed electricity on the grid (Jenner et al., 2012). Second, policy-makers desire to remain in office, this making their legislation to be written to maximize political support (understood as money or votes). After all, “energy consumers and taxpayers as huge parts of society make up the electorate to which the policymaker is accountable” (Jenner et al., 2012, p.6). Third, interest groups compete by offering political support in exchange for favorable legislation.

These three premises identified by Peltzman are key to understand the conflict of interests behind the decision-making process that underlies the RE support policy in Spain. The fact of enabling small electricity producers to access the grid implies that energy utilities, which operate the largest power plants, will lose to some extent part of their share of electricity production. This could indeed be a problem for them, as they may lose their dominant position in an electricity market that would open a regulatory barrier to entry, or they could benefit from favorable regulation that allows exerting market power. At the same time, the policy-makers are aware of the fact that supporting the investment in RES-E –and being among the first countries to do so– will result on the immediate deployment of a leading-edge industry and the creation of thousands of new jobs. This policy is therefore attractive to voters, who would favor the government decision to support RES-E as long as the repercussion on taxation does not increase.

The interest groups who are present in the network may be formalized in five clusters, the electricity utilities (back in 1994, only one public company, *Empresa Nacional de Electricidad, S.A.*,

and after 1997's electricity market liberalization, an oligopoly of five major utilities), RE support groups (APPA¹, FER², among many others), the large electricity consumers (at industry-level), the small electricity consumers (in several pressure groups) and the government, which at the same time features a network-like organization as a central administration and multiple regional authorities with both legislative and executive power (see Table 1).

Table 1. Actor Analysis

Actor	Power	Attitude	Interests
Central Government (policymakers)	Production power + Blocking power (high)	Proponent	Solving the energetic deficit Creating employment
Regional Governments	Production power (high)	Proponent	Create regional employment Regional economic development
Electric utilities and other investors	Production power (high)	Proponent (1994-2009) Opponent (2010-2014)	Invest in RE at infra-marginal cost (1994-2009) Recover their investment in combined cycles (2010-2014)
RE support groups	Blocking power (low)	Proponent	Secure investments in RE
Large electricity consumers	Blocking power (low)	Indifferent (1994-2009) Opponent (2010-2014)	Maintain a secured price per kWh (1994-2009) Lower electricity price (2010-2014)
Small electricity consumers	Blocking power (low)	Proponent (1994-2007) Opponent (2007-2014)	Employment creation Less fossil fuel consumption (1994-2007) Lower electricity price (2007-2014)

Linares and Labandeira (2013) analyzed with hindsight the conflict of interests between some of these groups. In the early stages of the RE support policy, most groups lobbied jointly to achieve favorable regulation, and the government was in a good position to favor the actors' interests. Regulation was at that moment seen as an opportunity for pioneering a new industry, while at the same time achieving a "green" label that was beneficial for the public image of all actors. Nevertheless, the picture changed drastically after the introduction of a RE support policy and its numerous revisions. The introduction of the regulation had two effects: first is the impact on market power of a significant penetration of RE, with its consequences on the prices paid by consumers and received by electricity generators; second is the impact on wholesale prices, resulting in an unbalanced distribution of costs of RE between consumers and CES-E producers. This last effect is related to the so-called "tariff deficit", an instrument created by the government to guarantee the agreed payment of the totality of RES-E costs to electric utilities, among other costs. This deficit was supposed to be financed by the increase in the electricity bill to small consumers, while large consumers were promised protection from this increase. Large consumers, at first indifferent towards RE support, were finally opponents of the policy after the market liberalization in 1997, which made their electricity bills raise as for small consumers.

Electric utilities, at first receiving the regulation with enthusiasm, given the prospect of gain through very profitable investments in RE, ended up suffering losses due to overcapacity. Regional governments backed the regulation in different ways. They used the adoption of RES-E regulation to finance other policy objectives via licenses or increased taxation on RE plants (see Linares and Labandeira, 2013). This resulted on an increase of the electricity bill, affecting large

¹ Asociación de Productores de Energías Renovables

² Fundación Energías Renovables

and small consumers. These authors even point out to cross-subsidization of RE support existing among consumers in different regions because of the fact of poorer, less-populated regions leading RE installation. This of course made richer, more populated regions to stop supporting the RE regulation. The discrepancies between the policy designed by the central government and its –strategic– interpretation and implementation by regional governments, have been pointed out to be one of the main reasons of its failure³.

How can we explain these changes in support during the RE policy period? One of the characteristics of networks, standing close to variety, is their dynamic (De Bruijn and Ten Heuvelhof, 2008), i.e. the positions of actors change constantly. The unpredictability of the outcomes of one policy or another, together with the adoption of strategies in their implementation, made allies turn into enemies, and from unanimous support, the actors ending up in a fierce contestation.

4. Analysis of the decision-making process as a succession of limited comparisons

Charles Lindblom's concept of incrementalism, or “muddling through” has been often used to describe RE policymaking (Low et al., 2012; Hoppmann et al., 2014). This section will analyze the decision-making process using this theoretical model.

4.1. *Theoretical Approach*

Lindblom acknowledges the limits of intellectual capacity and information sources to provide all possible policy alternatives for a given problem and to forecast all their outcomes, known as limited (or bounded) rationality (March, 1994; Allison, 1971; Simon, 1965). He also detects the insufficiency of time and money allocated to solving policy problems, and the instructions given to public agencies not to use a fully rational approach when formulating policies. Therefore, Lindblom suggests that policymaking should be formalized with his method of successive limited comparisons. When approaching complex social problems, with conflicts of values such as the one described in section 3, the ultimate test for a good policy is precisely an agreement on the policy itself rather than the agreement on values, which is less likely to happen (Lindblom, 1959).

But how do policymakers agree with other stakeholders on a policy? What process of decision-making is used to reach this agreement? Lindblom explains that first there is a simplification process, achieved by limiting the alternative policies to those that “differ in a small degree from policies presently in effect” (p. 84). Then, policies are decided by means of a process of continuous revision. This succession of “limited comparisons” (i.e. whose changes are not fundamental, but rather small adjustments at the margin) gives the policymaker the ability to learn from his own previous policies, test his own predictions, and remedy errors in every increment of the policy.

4.2. *Application of incrementalism to the policymaking process*

The incremental model can indeed be observed in the Spanish RE support policy's decision-making process. From 1994 to 2014, each policy increment merely corrects some undesired behaviors from the previous one, in an effort to reach a definite policy formulation. The initial formulation in 1994 of a feed-in tariff (one of the most common RE support mechanisms) was modified in 1997 as a fixed-premium system (see Del Río and Gual, 2007), and from there, all further modifications (six until 2012) only targeted the correction of the support policy. It is worth to mention the introduction in 2007 of a cap-and-floor system, designed to prevent overinvestment in renewable energies (given the attractiveness of a fixed premium for investing in RE). This mechanism, although theoretically good, was not successful in practice due to the behavior of regional governments, who kept encouraging investments in order to stimulate their economy (see Linares and Labandeira, 2013, pp. 3-6).

³ *Diario Expansión*, Autonomies ignore the Government and flood Spain with their wind power plans, <http://www.expansion.com/2010/05/14/empresas/energia/1273868366.html>, 15 May 2010, last accessed on 17 June 2014.

How could the RE support policy collapse? Linares and Labandeira (2013) understand that most of the reasons do not have to do with the policy design itself, but rather with its implementation. As commented before, the complex network where the policy was to be implemented had room for strategic maneuvers of its actors. But then, why policymakers did not prevent this? As Low et al. (2012, p.804) suggest, a problem of incrementalism and trial-and-error learning is that “by the time serious flaws become apparent, a policy may be quite resistant to change”. The 2012’s moratorium on the support of new plants, together with the following, even more restrictive revisions to the policy were the final acknowledgement of an unsustainable regulation, and a total U-turn to an incremental model that may have not been the best one to follow.

5. Conclusions

The present paper has explored the facts that underlie the policymaking process targeting the promotion of RE investments in Spain, and set out to answer from the perspective of decision-making theory two questions that have been an issue of numerous discussions: why the policy has been revised so many times, and what can explain the sudden collapse of a successful policy?

Leaving the political and economical details for other authors (Linares and Labandeira, 2013), it can be concluded from the decision-making theoretical perspective that Lindblom’s incrementalism can explain why the RE support policy was revised so many times with a short span in between. This model of policymaking would be adopted because of the possibility to overcome limited rationality by adding non-fundamental changes to the initial support policy, while avoiding severe confrontation with other actors.

These other stakeholders conform a network where a variety of interests, power positions, and dependencies intertwine to conform a complex and dynamic system. The sudden change in the RE support policy can be explained by the changes on the interests and positions of relevant actors, such as electricity utilities, consumers and regional governments, and the inability of the central government to react against their strategic behavior. This ended up with the government yielding to the pressure of electric utilities and consumers, who no longer could stand the outcomes of a failed policy experiment.

6. Recommendations

Other countries may be pursuing their own energy transition, may it be because of the prospect of “green jobs”, or so to alleviate their energetic dependence. The following recommendations address policymakers that are involved on the RE regulation for that purpose, and can be summarized as “know your network, decide in it”.

First, involving actors in the decision-making process would help to abandon a rather conservative incremental model, and start decision-making in a network environment, where decisions are likely to happen in rounds of negotiation. This approach would of course be less comfortable for the policymaker, but it is more likely to succeed in the long-term.

As a second recommendation, the policymaker should account for the strategic behavior of actors, preventing opportunism with more strict regulatory measures. This could be seen as a way of exerting policymakers’ power, but it is probably the only way to avoid a strategic misinterpretation of the support policy, and to force cooperation in order to achieve a win-win decision for the actors in the network.

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