

INTRODUCTION

An informed energy transition

I'm not saying anything new or surprising: we live exciting times in the energy sector.

Technological evolution is accelerating, particularly for renewable energies, but also for natural gas or storage; oil markets become more volatile and uncertain; consumers demand, and entrepreneurs propose, new business models; international geopolitics get significantly altered, with changes in the major producers or consumers of energy; and on top of this, we have the threat of climate change and the huge changes that this requires in our energy systems.

As we recently stated in the *Informe España 2015* by Fundación Encuentro,¹ Spain faces large challenges on energy issues: the decarbonization of the system, the reduction of conventional atmospheric pollutants, the correct formation of prices, the affordability of energy for firms or the industrial competitiveness, the improvement in energy security...

This is hence a turbulent and complex time, but also full of opportunities for those who read correctly the signs of the times: the need and opportunity to make evolve our energy systems towards more sustainable ones, robust against all the internal and external threats, both in the short and long term.

¹ <http://www.informe-espana.es/download/Capitulo%2014-Energia.pdf>

Of course, this evolution, although urgent, also requires a calm discussion. The long life of the energy sector investments and the lock-in effects involved, as well as the many uncertainties that we face, require a long-term approach, and associated to it, a need for consensus beyond the short-termism usually associated to our political dynamics. We must agree on the technological and regulatory model we want for our future energy system, with a common-good perspective, which includes future generations.

Fortunately, most of the stakeholders involved in the formulation of energy policy, including many political parties, are aware of this need and opportunity, and include in their programs laws, commissions or plans for an energy transition. But this also requires a long-term consensus, because there are no clear or unique solutions. In a political moment such as the one we are currently living in Spain, in which, more than ever, we need to reach wide agreements, and in which on the other hand everything is questioned and subject to debate, a consensus like this demands a lot of talent.

José Antonio Marina said recently that talent is the intelligence that chooses correctly goals, handles information, manages emotions, and practices the virtues of action required to achieve the goals. He also said that talent needs to be cultivated.

This is precisely the objective of this new journal, *PAPELES DE ENERGÍA*: to cultivate the abundant talent that exists in the Spanish energy system, so that it can respond in the right way to the challenges it faces. And, because of what I mentioned before, I do believe that Funcas could not have chosen a better moment to launch this journal, which wants to feed the debate about the energy transition in Spain with rigorous and independent knowledge, with global data and visions based on solid academic research, with experience and intelligence from other countries and also from our own.

Responding to such large-scope and complex challenges requires a necessarily wide approach, which includes all the economic, social and technological components related to these challenges. Because most of the complexity of the design of an energy transition does not come from technical issues, but from

social factors, such as the response of consumers, or the perception of the different technologies or their costs. In this first issue of PAPELES DE ENERGÍA three prestigious researchers offer us their visions about this multidisciplinary problem. These are not necessarily compatible visions, and of course arguable. But if what we want is to enrich the debate we must be able to read and react to different, controversial opinions, with which we do not necessarily agree, but which make us think, from the rigor and deep analysis of the different issues at hand. I think that the authors in this first issue largely achieve this goal: to call our attention towards relevant questions and to liven up the required debate. I will now point out the most important elements of their contributions, encouraging all readers to go through their papers carefully, with an open but critical mind.

Michael Pollitt, professor at Cambridge University, reminds us that, to begin with, it is very difficult to agree on what is a “good” energy policy, given the “different levels of tolerance to energy insecurity, widely different final prices of energy, and different attitudes towards environmental problems in the production and use of energy.” Although technologists can propose winning solutions (in their opinion), there is a clear disconnection between these solutions and real politics. To reconnect them we must acknowledge the factors that separate them: factors such as the concept of justice we are dealing with, as vested interests, as mistakes in forecasts, or as the unfortunate persistence of “bad” policies.

Pollitt describes the influence of all these issues, and points us to a number of multidisciplinary areas of research, of large interest if we are to achieve a “good” energy policy: the perception by stakeholders; the pros and cons of quantification; the definition of welfare and its (unequal) distribution; the trust of the public; the role of the state; and the right management of projects. Pollitt concludes that only if we are able to incorporate these aspects effectively we can achieve a “good” energy policy. Something that, in his opinion, is feasible, based on past successes in similar fields.

Kathleen Araújo, assistant professor at Stony Brook University, delves deeper into some of the issues raised by Pollitt, in particular into an always central element in the debate, such as the quantification of costs and their perception.

Araújo tells us about the different approaches that can be made to the costs of energy transition, their advantages and limitations.

She also highlights the importance of considering all costs, even those which cannot be easily observed or quantified. And to do that she insists on the need to create solid and transparent connections between models, analysts, and decision makers, again stressing Pollitt's idea of creating a multidisciplinary framework for decision making.

A good illustration of many of the topics raised by Pollitt and Araújo is the German Energiewende: a tremendously ambitious exercise for the transformation of the energy sector, which shows lights and shadows in its execution, according to **Andreas Löschel**, professor at Münster University.

Löschel deals with three very relevant issues. First, he reflects upon the governance of the German transition: a framework based on the selection of indicators to guide the process, on the input of experts, and on formalized decision making. A framework that, according to the author, facilitates the continuity, the certainty in planning, and the comparability of the monitoring process over time, and which to some extent includes some of Pollitt's ideas. A framework starkly opposed to the improvisation and short-termism that we unfortunately see in many other countries.

Löschel then offers his personal assessment of the achievements and failures of the Energiewende. In his opinion, on the positive side we must include a large share of renewable energies, and the containment of the cost; on the negative side, the increase in CO₂ emissions and of the use of energy for transport.

Finally, he also proposes changes for the future, in particular a reform of the German renewable support policy, and a new market design. Without necessarily agreeing with all his proposals, I think it is easy to agree on the need to open this debate, also in Spain.

As I said before, I encourage you all to read carefully the contributions of these three authors. I am sure you will find them very interesting for the discussion about the necessary energy transition in Spain.

But, before leaving you with these papers, let me end with a much deserved section of acknowledgements. First, to Carlos Ocaña, Director General of Funcas, for his idea of creating this journal, and for his never-ending enthusiasm and support. Of course, to all the members of the Editorial Committee who, in spite of their many personal and professional engagements, have agreed to share a part of their very scarce time with this project. Also, I would like to thank the authors of the papers in this issue, and those who will come in future ones: in an academic world dominated by the “publish or perish” philosophy, it is not easy to find authors willing to share their academic knowledge with the general public. And finally, to all of you, the readers of this journal, who after all are the ultimate reason of its existence. I sincerely hope that you will always find here useful information for this fascinating project in which we are involved: the evolution towards a truly sustainable energy model in Spain.