

# **Three tales of smart regional specialization: the case of Wind Energy in Spain**

Cristian Matti

Davide Consoli

*INGENIO (CSIC-UPV)*

*EXTENDED ABSTRACT PREPARED FOR THE WORKSHOP*

*“Regional Innovation Policy Dynamics: Actors, Agency and Learning”*

*University of Manchester 23-24 September, 2013*

Smart Specialisation has gained ground in the policy realm in recent years as a platform concept for the promotion of efficient use of public investments within well-identified geographical and institutional contexts (Foray et al, 2012; OECD, 2012). The roots of this concept lie in the policy and scholarly tradition that sees regional innovation as the thrust of economic growth and prosperity in the modern globalized economy (Cooke, 2001; Asheim and Isaksen, 2002). Because it is firmly grounded in the particular characteristics of local resource endowment, the implementation of smart specialisation needs prior sound knowledge of regional physical and intangible assets. There is widespread agreement that smart specialisation strategies build upon tight coordination between businesses, public entities and knowledge institutions. And though external knowledge sourcing and cooperation are an integral part of innovation strategy via smart specialization, the criteria for inclusion of potential partners are adjusted to the priority of avoiding unnecessary duplication and unviable collaborations.

In spite of much progress on the conceptual front, the actual routes of implementation of smart specialization strategy are still not fully articulated. This is partly due to the complex nature of the governance involved in smart specialization, especially when policy design refers to multi-level decision-making in multi-actor contexts. But the pressing question remains: what is the route to smart implementation? And, perhaps more cogently, is there only one possible route? The present paper seeks to address

these questions by analysing different patterns of diffusion of Wind Energy technology in Spain. Using qualitative data on the experiences of different regions subject to similar national and supra-national legislation, we will illustrate the contingent nature of policy, and the diversity of routes that have been used to promote smart specialization around what many consider an ultimately mature technology (EWEA, 2009).

Spain has been at the forefront of renewable energy promotion since early days. The initial emergence of renewable markets of the 1990s progressively gave way to ever more sophisticated mechanisms for the impulse of energy trade in the decade 2000-2010. Through a wise mix of investments in infrastructures and of programs for the reconversion of existing knowledge capacity from traditional sectors (such as aircraft, metal mechanic, electronics, construction and naval industry) Spain has outgrown expectations and competitors (Meyer, 2007; Del Rio Unruh, 2007) until becoming, in 2010, Europe's leading producer of wind energy.

We argue that this trajectory would not look so triumphal had it not been for the pivotal role of specific regional actors. The various forms of innovative capacity that enable the latent potential at heart of the Wind Energy story in Spain stem from a series of multi-level interactions between public and private sectors and, also, with actors placed outside of the local sphere. European legislation and targeted support to R&D were the formal triggers for the variety of responses observed across regions. Renewable energy policy acquired a strongly localized flavour in Spain when local characteristics such as natural resource endowment, latent potential from existing infrastructures and propensity towards specific paths of technological specialization materialized. In the case of wind energy the key actions can be synthetically outlined as generation of: 1) Production Capacity (energy production), 2) Research Capacity (R&D projects and patents) 3) Organizational Capacity (governance and decision making mechanism), 4) Innovation Capacity (technology development) and 5) Policy Capacity (availability, stability and timing of policy instruments). Using these dimensions as guiding constructs, we identify three paradigmatic regional cases in the development of Wind Energy in Spain: Galicia, Castilla y Leon and the Basque Country. These cases provide a wide assortment of routes for the implementation of smart specialization. To appreciate the diversity of development paths across regions we frame the analysis in the broader context as defined by the timing of critical actions, their evolution and the relative positioning of each region within a changing system of interactions.

Galicia is among the early starters in Europe in promoting the wind energy sector, and currently the Spanish region with the highest installed capacity of wind turbines and of industrial centers. Galicia qualifies in our analysis as an “early mover”, and in some sense represents a standard case of smart specialization. Its development path differs substantially with that of Castilla & Leon (C&L), the runner-up region for density of installed wind park capacity and industrial centers. The stability and legitimacy of the regulatory framework have been key ingredients in attracting targeted regional R&D grants schemes and fostering the fast development of Wind Energy in C&L. Considering that it started with a relative disadvantage (i.e. a less developed industrial sector) and that it has over-performed several other Spanish regions we label C&L as “smart implementer”. The Basque Country (BC) is our third case study. Placed at the bottom of the list for wind energy production, it is the third region in Spain for number of industrial centers and the second for number of R&D centers specialized in energy issues. It is also home to key players such as Iberdrola (utilities), Tecnalia (R&D) and Gamesa (wind turbine manufactures), all engaged in tight collaborative strategy. The BC region has a long trajectory of R&D programs oriented to integrate industrial research and experimental development, as well as a proactive regional strategy – to illustrate, it is the only Spanish region that has made significant steps in the emergent offshore wind energy technology. Given this particular profile, we label the Basque country as the “knowledge creator”.

By comparing and contrasting the experiences of these three regions, the present study seeks to provide new understanding on the dynamics of smart specialization by focusing on the evolution and change of regional innovation policy. We propose to focus on the policy mix that has allowed the three regions, in different ways, to coordinate multiple objectives such as: security of supply, environmental commitment as well as local support for the creation of new markets and the industrial sector. In so doing the paper will also elucidate on the extent to which policy agendas and instruments for implementation are favoured or constrained by institutional path dependency. The empirical study will be based on the triangulation of information from case study research. Analysis of these data will be complemented by network analysis, content analysis of documents and interviews as well as statistical procedures.

## **Selected Bibliographic References**

Asheim, B. T., & Isaksen, A. (2002) Regional innovation systems: the integration of local 'sticky' and global 'ubiquitous' knowledge. *The Journal of Technology Transfer* 27(1), 77-86.

Cooke, P. (2001) Regional innovation systems, clusters, and the knowledge economy. *Industrial and Corporate Change*, 10(4), 945-974.

Del Rio, P., and Unruh, G. (2007) Overcoming the lock-out of renewable energy technologies in Spain: the cases of wind and solar electricity. *Renewable and Sustainable Energy Reviews*, 11(7), 1498-1513.

European Wind Energy Association (EWEA) (2009) *Wind energy--the facts: a guide to the technology, economics and future of wind power*. Earthscan.

Foray, D., Goddard, J., Beldarrain X.G., Landabaso, M., McCann, P., Morgan, K., Nauwelaersl, C., and R. Ortega-Argilés (2012) *Guide to Research and Innovation Strategies for Smart Specialisation (RIS 3)*. Smart Specialization Platform, European Union – Regional Policy Report.

Meyer, N. I. (2007) Learning from wind energy policy in the EU: lessons from Denmark, Sweden and Spain. *European Environment*, 17(5), 347-362.

OECD (2012) *Synthesis Report on Innovation-Driven Growth in Regions: The Role of Smart Specialisation*. OECD Publishing, Paris.