



Energy Efficiency and Renewable Energies in Spain: Recommendations for strategic guidelines and investment priorities for the ERDF programming period 2014-2020

Executive Summary

EUROPEAN COMMISSION

Directorate-General for Regional and Urban Policy
Directorate G – Smart and Sustainable Growth and Southern Europe
Unit G2 – Spain

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Luxembourg: Publications Office of the European Union, 2013

ISBN 978-92-79-31076-8

doi: 10.2776/4036

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Study on Energy Efficiency and Renewable Energies in Spain

Executive Summary

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INYPSA, Informes y Proyectos SA, 2013

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EXECUTIVE SUMMARY

Introduction

The rationale of this study is to make specific policy recommendations and establish investment priorities (at regional and national level) in the field of Renewable Energy and Energy Efficiency in Spain, in order to help achieving the thematic objectives during the next ERDF programming period 2014-2020 in the context of Europe 2020 strategy. An analysis of the sector has been carried out, focused on financing needs and other main barriers. Besides, an evaluation of ERDF and non-ERDF interventions in this field (in Spain and other Member States) has been performed in order to draw lessons.

Overall context

Spain has achieved a **high RES-E penetration in the power generation sector** although a very noticeable slowdown of project development and some loss of investment attractiveness in the sector have been detected. Regarding **RES for thermal uses, there is a delay with respect to the objectives of past national implementation plans, including solar thermal, geothermal and biomass plans**. In short, it is clear that Spain maintains a privileged position with regard to the current RES share (13,8% in 2010) and because a huge potential of RE-resources is available. For this reason, it is possible to reach not only the 20% share (mandatory RES share in relation to final energy consumption by 2020), but even a higher figure. Thus, Spain could collaborate to reach global EU targets using statistical RES transfers and also build a solid foundation in the framework of the roadmap for moving to a low-carbon economy in 2050. However, at present, **some doubts arise as to achieve even the mandatory target of 20% with the current policies**, despite the degree of progress that has been achieved and the available potential.

As for **energy efficiency**, Spain has **successfully implemented several action plans for energy saving and energy efficiency** since 2005. According to IDAE, Spain reached in 2010 the intermediate target under Directive 2006/32/EC (9% of final consumption) scheduled for 2016. However, using the energy efficiency index of the project Odyssee, Spain is one of only three EU countries where **energy efficiency improvement between 2000 and 2010 is zero** (partly related to the economic crisis). Besides, Spain also presents a **high-carbonized economy** and a **very high degree of energy dependence**, while the **energy intensity index** (not high compared to the EU average) has much **room for improvement** due to its economic structure and climate in relation to comparable countries.

With regard to the main aspects which will characterize RES and EE development in the context of the next ERDF programming period 2014-2020 in Spain, the following circumstances are considered worth to be highlighted:

- Very limited support through state financial stimulus policies, taxation or through special remuneration (feed-in-tariff, etc).
- General reduction of levelized electricity generation costs for most mature technologies.
- High energy prices for residential consumers and SMEs.

- New legislative packages, fostering renewable generation and energy efficiency in buildings.
- Difficulties to finance projects due to the widespread credit crunch and/or high risk perception by financial institutions.
- Restrictions on public debt.
- Increasing involvement of ESCOs and EPC contracts generalization, thus mobilizing activity and resources of SMEs and fostering private funding.

Analysis of the sector/technologies

An analysis of the strengths, weaknesses, opportunities and threats affecting sectors/technologies has been carried out in order to establish regional policies, with special emphasis on **barriers and funding needs that could be eliminated or reduced using ERDF funds**, either through non-reimbursable grants or either through financial engineering instruments (revolving funds or guarantees). It has been emphasized the degree of private sector involvement, the expected economic returns from projects and its relationship to the ERDF general strategy (in terms of external rates of return and Europe 2020 objectives). Regarding regionalized investment priorities in the context of ERDF interventions, a macro approach has been carried out. Following this approach, general recommendations have been provided regarding effort intensities to promote key RES technologies of and EE measures.

With respect to **renewable energy**, it is considered that, in general terms for the next programming period, **solar photovoltaic technologies (self-consumption/net-metering), solar thermal and biomass for heat generation** are technologies that, despite being or be very close to being competitive and with a stable revenue-generating capacity, they are exposed to suffer deployment barriers that can be eliminated/reduced through ERDF intervention.

On a second level, it is found that other technologies (**geothermal, micro-wind**) are not mature enough, they have important weaknesses including fewer (or more diffuse) resources, although they have enough potential in all regions. These technologies have very low or unstable economic returns, but they would be also matter of ERDF interventions based on a case-by-case evaluation (mainly using non-reimbursable grants), since they have high external rates of return. In any case and for all RES, in order to overcome barriers it is advised a **necessary and adequate regulation for low voltage network (“net metering”), changes in the regulatory framework of the electricity distribution network and simplification of administrative procedures: grid connection and other permits (RES for thermal uses) in general.**

As for **energy efficiency**, it is a priority to facilitate financing for projects using dedicated financial instruments. The **building sector** (residential, administrative or service sector) is presented as a priority objective for support through ERDF funding schemes. This is not only due their potential (in terms of ability to achieve energy savings and stable economic returns) or by their capacity to **create jobs and crosscutting activities**, but by the **ability to improve living conditions, help fighting poverty and reducing social exclusion**. Energy rehabilitation in housing aimed to reduce **energy poverty** (not evenly distributed

throughout Spain) should be a priority in terms of the effort intensity that is required by the government for the promotion of EE using cohesion funds. Regarding **ESCO's** involvement, proper innovative financing is required, together with clarification/simplification of public administrative contracting rules and government debt accounting rules (regarding EPC contracts).

The inclusion of RES technologies in **integrated projects (focused on reaching energy efficiency goals)** up to urban-scale using **district-heating and district-cooling networks**, and the implementation of **smart grids**, seems a successful strategy in line with the concept of *Smart Cities*.

With regard to investment in **R&D**, synergies should be established with national and European R&D authorities in order to support research and development plans in the field of sustainable energy technologies, including demonstration projects. Besides **solar** technologies (photovoltaic and thermal) and **wind** (especially off-shore and small-power), it is also worth investing on **marine energy**, **biomass/biofuels** (gasification / 2nd-3rd generation), in the field of **energy storage** and **manageable power generation**, **smart grids** and self-consumption (**distributed generation**). **Cluster** initiatives should be also encouraged, in line with the strategy of *smart specialization*.

Collection of good and bad practices

Finally, we have conducted an evaluation of ERDF interventions in Spain in the field of renewable energy and energy efficiency as well as financial instruments (JESSICA, JEREMIE and ELENA). Additionally, state support programs have also been analyzed in Spain (non-ERDF) in this field. Furthermore, specific EU-funded programs in other Member States have been highlighted (both ERDF non-ERDF interventions), collecting good and bad practices in order to draw lessons for Spain in this field. The main lessons that have been arisen are:

- The availability of adequate financing, together with beneficiary awareness, mobilizes main actors in order to implement those energy efficiency projects with high-enough levels of economic return.
- Tailor-made financing solutions have successfully promoted energy efficiency and renewable energy in bankable projects in EU, when they are properly designed, well-managed and included within an overall strategy (regulation, campaigns, etc)
- While it is too early to evaluate the performance of JEREMIE and JESSICA engineering FIs (due to the slow deployment), it is guessed their ability to mobilize EE and RES projects through the private sector initiative (ESCO's business fabric) when they are well-grounded in ex-ante evaluations and they are part of a comprehensive strategy.
- The appropriate regulation is a key lever to achieve programmes' goals, so that the transposition of EU legislation is essential (eg EPBD). ERDF interventions must strengthen the regulatory momentum and the common objectives.
- Home tenancy scheme and, in particular, social housing scheme which is adopted in each Member State is an important factor for the success of EE programs. In

this regard, regulation and OP's in Spain must be flexible enough and specifically-designed.

- Programmes require extensive ex-ante studies, including not only assessment of market needs and financial requirements, but also they must be technically well-founded.
- Financial instruments must be accompanied by capacity building programmes for institutions, as well as awareness raising and training campaigns for beneficiaries.
- Funding support programmes are more effective if accompanied by grants (reaching 100%) including audits, because initial project costs are generally assumed to be a major barrier.
- Goal-oriented approach, using incentive mechanisms and verification, ensures reaching efficiency/saving targets in most cases. The gradation of the intensity of the support (based on achieved savings' goals or RES-utilization levels) it is found to be very effective.
- Public administration plays a very-important "exemplary role", being a dynamic player in the ESCOS' market. ELENA-type programs, focused to detect opportunities, to provide capacity building and to facilitate the preparation of calls for tenders, seem to be a very effective strategy due to the existing public debt restrictions (local and regional, mainly).
- One-stop shop and the simplification of procedures are both common features in most successful programmes. In some cases, project consulting/auditing, monitoring, verifying and licensing are fully integrated into programmes, avoiding procedural burden to beneficiaries.
- Integration of national support schemes for RES and EE together with ERDF support (in terms of coordination of goals, eligibility criteria, and integration of procedures) is a key strategy in order to avoid competition between programmes and the undesirable overlapping of procedures. It also helps to avoid inefficient decision-making at the administration. This has a desirable leverage effect, and also it ensures the achievement of mutual reinforcement between different support schemes, therefore avoiding a dilution effect.
- Strong collaboration/coordination among agencies, local and national governments and other stakeholders is crucial to successfully achieve the objectives of the support programmes. Specifically in Spain, past framework agreements between regional governments and IDAE (in the context of NEEP and NREP) have achieved a high degree of execution.

Recommendations for policy guidelines and investment priorities

Finally, based on previous tasks, a not-comprehensive set of concrete recommendations for policy guidelines and investment priorities is given for the next ERDF programming period 2014-2020.

Nº	Recommendation
A1.1	R&D support for renewable energy: solar, wind, marine and biomass energy
A1.2	R&D support for energy efficiency and smart grids: RES integration in smart grids. Development of energy storage technologies

Nº	Recommendation
A2.1	Focus towards energy-saving projects which could be verifiable, measurable, sustainable and economically viable over time, and phasing out the “renove-like” plans.
A2.2	Creating specific energy-efficiency support programmes in the building sector (residential, administrative and services) and industrial sector (SMEs) through the use of financial instruments such as JESSICA and JEREMIE
A2.3	Prioritizing energy rehabilitation in housing aimed to reduce energy poverty
A2.4	Fostering EPC contracts and ESCOs, using specific financial instruments mainly through credits or guarantees
A2.5	Alignment of the OPs objectives with other National and European plans: NEEAP 2011-2020 and Energy Efficiency Directive
A2.6	Support of technical capacity building programmes, energy audits and providing technical assistance
A3.1	Focus towards projects which could guarantee a reasonable rate of return, and have high external rates of return
A3.2	Inclusion of RES in integrated projects (EE&RES) and the use of smart grids
A3.3	Alignment of the OPs objectives with other National and European plans: NREAP 2011-2020
B1.1	Perform a proper project planning during the development phase of OPs.
B1.2	Alignment and coordination of OPs implementation with National and European plans: NEEAPs, PANER, Energy Efficiency Directive.
B1.3	Participation of stakeholders during the design phase of OPs.
B1.4	Integration of inter-institutional collaboration schemes within the basic design of EU-funds management at national level.
B1.5	Simplification of (ERDF) administrative procedures and the creation of tools to help developers.
B2.1	Preference for the use of financial instruments such as JESSICA or JEREMIE over non-reimbursable grants
B2.2	Conduct a coordinated approach at country-level when designing financial instruments
B2.3	The European Commission should provide guidance to Managing Authorities regarding state aid rules.
B3.1	Training and dissemination programs about financial instruments for beneficiaries
B3.2	Implementing capacity building programs intended for public administration.
B3.3	Using external resources, technical assistance, by Managing Authorities

Fulfilment of ex-ante conditionalities

A preliminary summary regarding the fulfillment of ex-ante conditionalities is provided following Annex IV of CPR, for those conditionalities which fulfillment is not achieved or some doubts exist.

Ex-ante conditionality	Assessment of not-fulfilment	Remarks
Transposition into national law of Directive (2010/31/EU) of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings in accordance with Article 28 of the Directive	Infringement procedure against Spain is open as Directive 2002/91/EC (subsequently amended by Directive 2010/31/EU) has not been successfully transposed. Indeed, the Spanish legislation excludes existing buildings in the regulatory framework of energy certification of buildings ¹ .	The full transposition of the Energy Performance of Buildings Directive 2010/31/EU it is considered essential in order to achieve the thematic objectives.
Renewable energy: Transposition into national law of Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives (2001/77/EC) and (2003/30/EC)	Spain has notified complete transposition of the directive, but an infringement procedure has been opened due to possible partial transposition. It has been expressed by Spain in the "National Reform Programme, 2012" the need to revise the NREAP 2011-2020, due to legislative changes which affect the legal framework of RES.	Net-metering scheme regulation, the simplification of administrative procedures (for self-consumption and thermal applications), "smart grid" regulation and those regarding biomass sources and transport (forestry exploitation and agriculture) present in the NREAP 2011-2020, are considered essential to achieve the thematic objective.

¹ *Royal Decree 235/2013, of 5 April 2013, approving the basic procedure for certification of energy efficiency in buildings, has been published*

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