

PRESS RELEASE

Changes in existing energy policies could convert Spain into a global leader in innovation

- *The research center Economics for Energy presents results of its latest report today in Madrid. It calls for a more active, complete, and flexible role of public administrations to increase Spain's competitiveness*
- *New technologies can reduce fuel expenses; for some technologies these savings are up to 70 times bigger than the initial R&D investment*
- *The innovation potential of photovoltaic technologies appears to be higher than that for wind if incentive systems are appropriately designed*

Madrid, January 11th 2013. Spain has sufficient potential to become world leader in energy innovations if public policies are designed in a more comprehensive and flexible manner. This would include closer monitoring of subsidized projects, support mechanisms for new and emerging innovators, as well as a strategic selection of priority technologies that should be supported with preference.

That is the essential conclusion of the report "Innovation in Energy in Spain. Analysis and Recommendations". The report was prepared by the research center Economics for Energy and presented this morning in the Ramón Areces Foundation. The report is the result of extensive research conducted by Economics for Energy during the last year. The Institute for Technological Research of Pontifical University Comillas (Madrid) and the Belfer Center for Science and International Affairs of the Harvard Kennedy School collaborated in the research activities that are behind the report.

Investing in innovation leads to the availability of new technologies which help to cope with the continuously rising energy demand, reduce the dependence on fossil fuels, limit environmental impacts, and improve efficiency due to reduced energy costs. The report claims that the cost savings in the energy sector for some technologies are as much as 70 times higher than the initial investments necessary to develop the new technologies. This underlines the benefits of innovation efforts. At the same time Spain could evolve as an exporter of innovative technology and reduce the environmental implications of its productive system. Risks related to energy price volatilities would also decline.

The analysis shows that the resources dedicated to energy innovations in Spain are rather low, especially when compared to the large investments in clean energy. Indeed, the Spanish public support for R&D in energy technologies (measured per capita) is below the European average; Japan's efforts are as much as ten times bigger than Spain's. Actually, in Spain the investments in energy innovation amount to less than 1% of total energy spending.

The lack of investment in the area is particularly unfavorable in the private sector. Spanish energy companies dedicate less effort to R+D than firms in other industries (measured as a percentage of innovation expenditures over turnover). In the case of renewables, Spanish firms engage in less innovation than the European average. This clearly rebuts the theory that the feed-in tariffs trigger innovation. While Spanish energy R&D is more productive than the European average in terms of publications, is clearly below European averages in terms of international patents or revenues from energy exports.

Savings and returns

The report also analyzes the possible savings in the Spanish energy systems if more R&D investments were carried out. In a calculation for 2030, photovoltaic innovations have a potential to reduce costs by € 8.000 million, and carbon capture and sequestration technologies follow with € 4.500 million. Biofuels and other solar technologies could still yield savings as high as € 3.000 million, whereas gas and wind plants offer somewhat lower cost reductions of below €1.000 million. All estimations represent maximum values for achievable cost reductions.

The returns of the energy innovations are potentially high. Once the cost reductions are high enough for the technology to provide returns, these returns take high values: savings can amount to as much as 70 times the investment, as is the case for concentrated solar-thermal technologies. Photovoltaic technologies and biofuels can yield returns of 45 to 50 times the initial investment. The returns for wind energy are around 14 times the initial investment.

Recommendations

The authors of the report recommend to increase and redirect investments to those areas that were identified to deliver the biggest cost savings. Moreover, they suggest creating incentive systems that already proved to be efficient in other countries.

One of the first measures should be a strategic analysis to identify and define those technologies that Spain has an interest to specialize in. Subsequently the innovation support should be directed to these areas with priority. This scheme should be flexible to respond quickly to the innovation results that arise over time. The authors believe that the complexity of this strategic evaluation analysis requires the involvement of experts and professionals from firms and academics. They suggest creating a supporting committee similar to the American Energy Innovation Council. The priority areas should be selected according to the potential for improvements of each area, the market niche, the comparative advantages of Spain, and the potential revenues that can arise. The potential of clean energies is highlighted in the report, but other technologies are also included in the analysis.

More measures are proposed to improve the results for the scarce innovation in the private sector. Public administrations should monitor subsidized innovation projects more closely and take corrective measures if required. Moreover, the authors suggest closer cooperation between public entities and the private sector when

conducting R&D. In this sense, the collaboration and communication of the parties that intervene in innovation projects is especially crucial. Virtual centers of excellence could be created to concentrate the efforts of research centers, universities, and companies in the relevant areas.

The design of specific policies to trigger innovation should be coordinated with energy policies. That is necessary to prevent outcomes as those observed in the Spanish photovoltaic sector, where extensive financial support did not lead to relevant innovations. Moreover, the authors highlight the importance to link innovation impulses with electricity regulation by introducing adequate R&D incentives.

The support for innovative entrepreneurship is another recommendation mentioned in this report of Economics for Energy. Special support should be directed to energy start-ups. Improved communication and flow of scientific information in energy innovation, increased awareness and sensitivity in the population to communicate the usefulness of dedicating public and private resources to energy innovations are additional means to ultimately improve the energy efficiency and competitiveness of the Spanish economy.

About *Economics for Energy*

Economics for Energy (www.eforenergy.org) is a private research center constituted as a non-profit association participated by: Comillas Pontifical University, University of Vigo, the Institute of Fiscal Studies (Spanish Ministry of Public Finances and Administration), Barrié Foundation, Ramón Areces Foundation. Novacaixagalicia, Banco Santander, Gas Natural Fenosa, Acciona, Alcoa, Iberdrola, and FUNCAS.

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The mission of Economics for Energy is to create knowledge in the field of energy economics, and to transfer this knowledge effectively to society, informing, guiding and advising public and private decision makers.

Its research lines are focused on the analysis of energy demand, innovation in the energy sector, economic assessment of energy and environmental policies, economics of energy security and long-term energy and regulatory prospective.