Concern over future financing for onshore wind (terrestrial) I&D programmes

An opinion from the Region of Navarra

Content

Cleantech sector in Navarra

Navarra has become a world benchmark in renewable energies, especially in wind power. It is home to 41 wind farms with 1,164 turbines and an installed capacity of 972 MW.

This leadership position is even more marked in the field of large-scale wind power, where we have leading world companies in both the development of wind farms (Gamesa, Acciona) and the manufacture of wind turbines and their components (Gamesa, Acciona, Alstom, Ingeteam…).

The Government of Navarra has worked intensively to develop renewable resources through support policies. Indeed, in 2004 it was awarded the European Union prize for the Best Regional Policy for developing renewable energy sources.

The successes achieved are:

- 20% of overall energy demand in the region has been covered by renewables since 2009 (1 of 3 EU objectives for 2020).
- More than 81.1% of electricity consumption is covered by renewables.
- About 40% of the electric power produced is exported.
- The weight of the sector is considerable:

    - ✓ An industrial fabric of around 100 companies.
    - ✓ 5,000 jobs.
    - ✓ It represents 5% of the region's GDP.
    - ✓ Leading world companies in the sector have set up operations in Navarra.

Reduced investment in onshore research and innovation

During a working meeting on European I&D wind-power programmes, the Government of Navarra, as well as all the companies present, expressed their **concern regarding the decrease in I&D onshore wind opportunities in Europe**. Furthermore, this European trend could have consequences within the support framework for domestic I&D.

The participants in the meeting stressed the troubling nature of the fact that, within the framework of the SET Plan, for 2030 **cost reduction objectives have been set only for offshore** (ones that in any event are hardly ambitious). This could have an impact on future H2020 work programmes beyond 2020, as these commitments and goals (agreed between the sector and the European Commission) will establish the priorities for future financing. And onshore wind is not mentioned.

A clear example is the most recent European support programme aimed at I&D: the H2020, specifically "Horizon 2020, Work Programme 2016 – 2017, 10. 'Secure, Clean and Efficient Energy'". There are two support lines to renewable technologies: one for development of technologies and another for demonstration of technologies. The first, development of technologies (green), includes both offshore and onshore. In the second (red), where the projects are larger and closer to the sector, the entire budget was centred on offshore.

Renewable energy technologies

Developing the next generation of renewable energy technologies

LCE-06-2017: New knowledge and technologies
- **Open for onshore and offshore.**
- **EC request per project= from 2 to 4MM€**

LCE-07-2016-2017: Developing the next generation technologies of renewable electricity and heating/cooling. Year 2016: Wind energy: Advanced control of large-scale wind turbines and farms.
- **Open for onshore and offshore.**
- **EC request per project= from 2 to 5MM€**

LCE-07-2016-2017: Developing the next generation technologies of renewable electricity and heating/cooling. Year 2017: Wind energy: Reduction of environmental impact of wind energy:
- **Open for onshore and offshore.**
- **EC request per project= from 2 to 5MM€**

Demonstrating innovative renewable energy technologies

LCE-09-2016: Increasing the competitiveness of the EU PV manufacturing industry
LCE-10-2017: Reducing the cost of PV electricity
LCE-11-2017: Near-to-market solutions for reducing the water consumption of CSP Plants
LCE-12-2017: Near-to-market solutions for the use of solar heat in industrial processes

LCE-13-2016: Solutions for reduced maintenance, increased reliability and extended lifetime of off-shore wind turbines/farms

- **Open only for offshore.**
- **EC request per project= from 7 to 10MM€**

LCE-14-2017: Demonstration of large >10MW wind turbine

- **Open only for offshore.**
- **EC request per project= from 20 to 25MM€**

LCE-15-2016: Scaling up in the ocean energy sector to arrays
LCE-16-2017: 2nd Generation of design tools for ocean energy devices and arrays development and deployment
LCE-17-2017: Easier to install and more efficient geothermal systems for retrofitting buildings
LCE-18-2017: EGS in different geological conditions
LCE-19-2016-2017: Demonstration of the most promising advanced biofuel pathways
LCE-20-2016-2017: Enabling pre-commercial production of advanced aviation biofuel
Supporting the market uptake of renewable energy technologies
LCE-21-2017: Market uptake of renewable energy technologies

Reasons for maintaining investment in onshore innovation and development

Reasons:

- The **offshore market entails very high risks that are unacceptable to the majority of companies**. Offshore requires large-scale development and a high degree of financial solvency. Only large companies can assume the costs and risks associated with this technology. The associated costs (apart from the machinery) are very high and require the involvement of another type of manufacturer and partners in the investment.
- The mere fact of **being able to compete in markets** with conventional technologies **does not justify cutting I&D funding** for terrestrial wind power. Europe continues to encourage I&D programmes in sectors with a pre-existing competitive market (e.g., aeronautics).
- Cutting financing now will result in the **loss of competitiveness of the sector** in the future and could **endanger the global leadership position** of European wind-energy companies (including Spanish ones) in the onshore market. Meanwhile, one of the **objectives of the Energy Union** is to maintain leadership in Renewable Energies.
- **The pressure to improve the cost (LCOE)** in a competitive market where terrestrial wind-power operates continues to exist. This situation is also critical for onshore wind, considering the development of photovoltaic technology and the latest events in the international market (such as alternative solution in auctions). The cost of electricity at auction is increasingly aggressive for renewable energies. Therefore, it is vital to work in these areas. I&D is very important when it comes to reducing the LCOE of installations, both in product design (it affects CAPEX) and in product maintenance (it affects OPEX).
- **A significant window of opportunity still exists for onshore over the next 15-20 years in emerging countries with very high investment opportunities**, even though fossil fuels are not going to disappear from these markets. Many markets are still focused on

onshore wind, a trend which will continue in the short to mid-term. However, within this timeframe offshore is not going to be able to be competitive. The question is if European and Spanish companies will be able to take advantage of the opportunities in this increasingly globally competitive market (China, USA). In some of these markets such as India and Brazil, the costs are extremely aggressive and, consequently, advances in I&D are crucial for price reduction.

Recommendations

- Keep **onshore wind** among the **priorities in I&D programmes** (H2020 and domestic programmes) – include offshore in specific topics or define broad themes that are not limited exclusively to searching for offshore solutions.
- Set **LCOE reduction goals** within the framework of the SET Plan for onshore wind as well so as to ensure this line will be a priority in European strategy.
- **Focus** will have to be placed **on technology, not on markets** (onshore/offshore). Many of the developments and solutions are applicable both for onshore and offshore.
- Topics such as "**Intelligent windfarms**", an area with a lot of momentum (e.g., GE activities in this sector), could be promoted. Exploring issues related to limitations of onshore parks for logistical reasons and **modular design** might also be valuable as a response to this challenge.
- **A large fleet of installed onshore** technology exists at the international and specifically domestic level. These installations require continuous work for the application of improvements that increase their competitiveness compared to other energy sources. Many of these improvements come from the **adaptation of systems already implemented in recent products**, but others are the result of **generating new ad hoc solutions for this "old" fleet**. Taken into account here are **improvements in monitoring** (i.e., pitch), **transformation of technologies** (i.e., conversion of assets from fixed to variable speed), **repowering** (i.e., installation of new turbines)...