GOBIERNO DE ESPAÑA
MINISTERIO DE HACIENDA
SECRETARÍA DE ESTADO DE PRESUPUESTOS Y GASTOS
DIRECCIÓN GENERAL DE FONDOS EUROPEOS

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UNIÓN EUROPEA

Una manera de hacer Europa

BUENAS PRÁCTICAS
Actuaciones Cofinanciadas

FLOATING UNDIMOTRIZ OFFSHORE CONVERTER
Basque Energy Agency. (EVE))

Programa Operativo de País Vasco

Año 2018

Fondo Europeo de Desarrollo Regional

FLOATING UNDIMOTRIZ OFFSHORE CONVERTER

Introduction

The main objective of the Energy Strategy is to ensure that the country becomes a pole of knowledge and a reference to the development of renewable energies worldwide. According to the energy strategy of Euskadi, the objective in the matter of renewable energies is to reach a contribution of 14% of the demand for total energy in the year 2030. To achieve this, work is being done to favor the implementation of wind energy, energy solar, biomass, geothermal energy and, in particular, ocean energy.

The action presented in one of those carried out by the EVE (Basque Energy Agency), is a public manager of the projects and activities in line with the energy policies defined in the Basque Government, and consists of the development of the technology of an offshore floating converter (wave energy sensor).

This wave energy sensor (hereinafter, Converter) is located in the BiMEP infrastructure (Bizkaia Marine Energy Platform), an area dedicated to research, evaluation and operation of devices in the commercial and commercial phase.

The sensor of the waves consists of three parts made of steel that once assembled take the form of a vertical buoy. Its interior contains mechanical and electrical equipment capable of generating energy through the movement of the waves. Submerged in the sea almost in its entirety, it will generate energy through a technology called OWC (Oscillating Water Column). In the interior of the structure a water column is created that, with the unimpaired movement of the waves, compresses and decompresses an air chamber that remains in the upper part. The air is expelled upwards and taken advantage of by one or several turbines that always rotate in the same direction. With their turn activate an electric generator that produces energy.

Euskadi wants to be a pole of knowledge in terms of wave energy and generate a new industrial sector in this field. The Energy Strategy of Euskadi to the year 2030 aims to achieve an electricity supply through the set of renewable sources of 19%, and that 21% of the total energy consumed has this same origin.

The total cost reached by this device is € 2,500,000. There have been a series of adjustments to it, the certified figure being € 1,900,000, half of which corresponds to the ERDF.

Currently there are a total of about 30 researchers working on different aspects of the BIMEP trial infrastructure. Of these, 7 are investigating the wave energy device almost 100% and 15 collaborating in the research within the European project OPERA http://opera-h2020.eu/. On the other hand, currently, 3 Doctoral Theses are being developed in relation to this field.

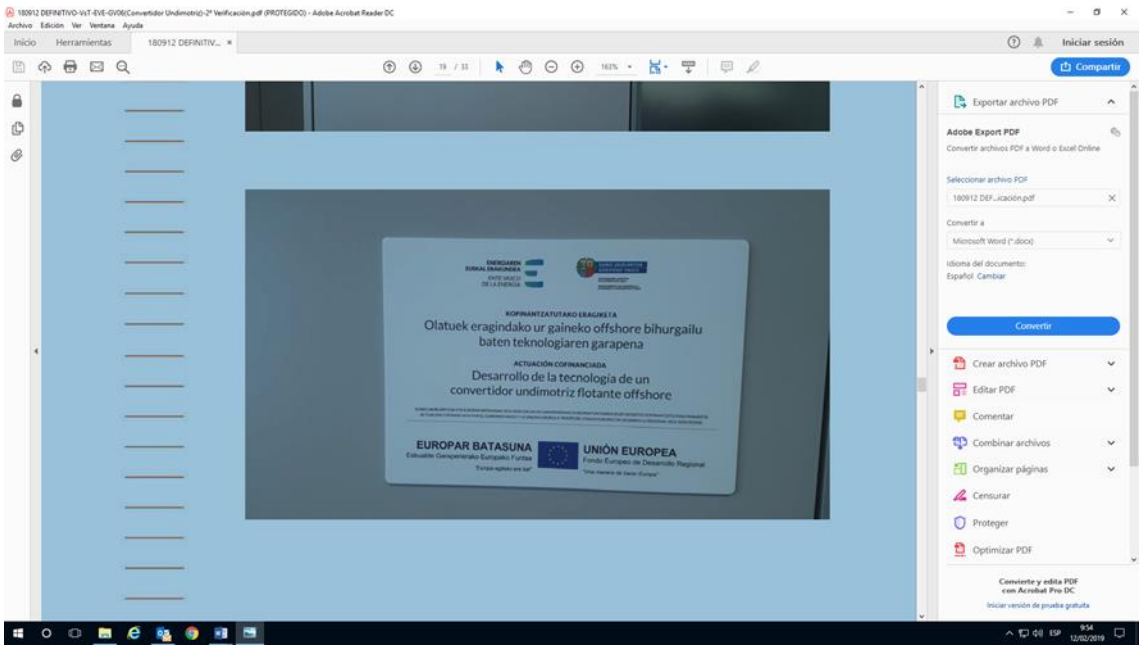
Manufacture and installation at sea of the first device of Basque technology for the generation of wave energy.

For all the above mentioned this Converter stands out as a Good Practice, according to the following criteria:

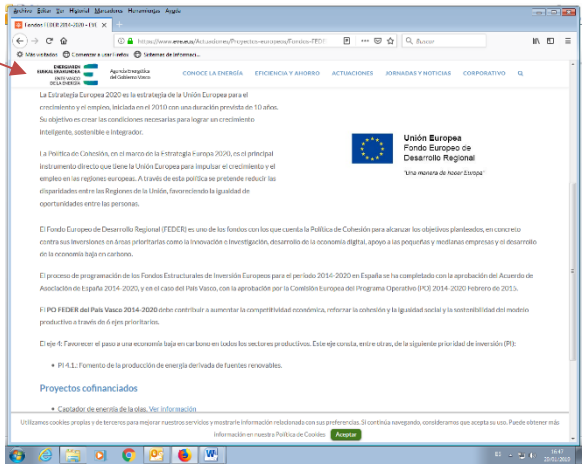
1. The action has been conveniently disseminated among the beneficiaries, potential beneficiaries and the public in general.

Information and communication has been an element of first order in the development and implementation of the selected operation, guaranteeing the publicity and transparency of the converter prototype and increasing citizen awareness of the added value of community co-financing through a wide diversity of tools and actions.

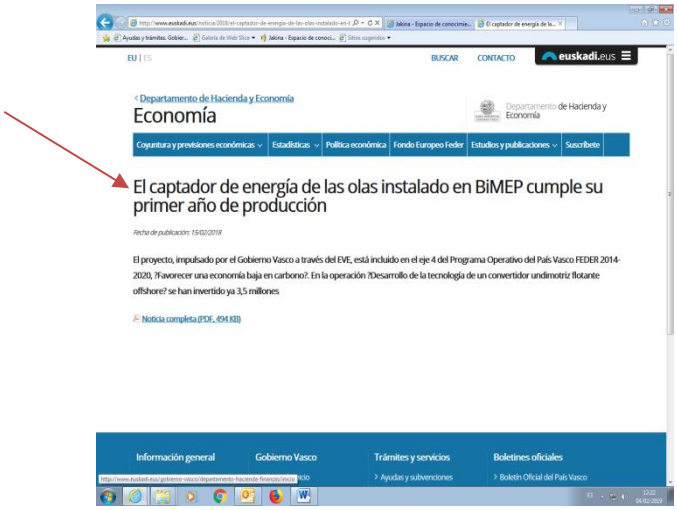
In addition to those issues that are required to comply with the legal aspects referred to the communication such as the inclusion of the mention to the co-financing of the performance presented by the ERDF in Official Gazettes and in all the administrative documentation, and the placement of a plaque mentioning the co-financing of the European Union through the ERDF in the offices of the EVE, other communication actions have been launched, such as those detailed below.



In the first place, the inclusion in **the institutional website of the Basque Energy** Agency of information related to the different R & D projects that are developed, with reference to the operation object of this document, with the reference to the logo, reference to the fund, and slogan when it is linked with the complete information of the same as it is detailed next.



Likewise, there is a Reference to this operation on the **Basque Government website**, in the corresponding site of the **Department of Finance and Economy**.



There is also a reference to it in the magazine **"Estrategia Empresarial",** in which information on the actions co-financed by the ERDF is collected monthly

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Likewise, **press releases (Irekia) have been published in the Open Platform for the citizens of the Basque Government,** highlighting the co-financing of the ERDF for the development of the project and which has been reflected in the news that appeared in different digital media.

Departamento

Materias (resultados solo del BOPV)

Sección (resultados solo del BOPV)

Rango (resultados solo del BOPV)

2 .. The performance incorporates innovative elements

The innovative character is given in the first place by the very nature of the operation.
The wave energy sensor that was launched in the estuary of Bilbao in the autumn of 2016 to be installed in BIMEP, the marine energy platform located off the coast of Armintza (Lemoiz), has passed twelve months of tests in conditions of real sea. It is the first floating device of OWC technology (column of oscillating water) that has been installed and connected throughout the State and the first in Europe to overcome the barrier of the year of tests at sea generating electricity.
Once the testing phase of this low power device has been passed, which will be carried out during a test period, the design and manufacture of the 1: 1 scale device will be passed.

3. The results are adapted to the established objectives.

The primary purpose of these collectors, will not be the production of electricity but its technological development, it is the technologies that are not yet presented in the future.
This wave energy sensor, designed for the company, Oceantec Energías Marinas, is a prototype with the shape of a child and connected to the general electrical network. The good results of the tests. The objective is the creation of a 1: 1 scale sensor connected to the network, which leads to the next sales phase.

4. Contributes to the resolution of a regional problem or weakness

The Basque Government estimates that by 2030, marine energies will be a market with investments of over 8,000 million euros and job creation of 50,000 jobs. This regional executive is committed because 21% of the electricity consumed in Euskadi is renewable in the year 2030. This bet is considered as a way to reduce the dependence on fossil energy sources by replacing it with other sources. cleaner.
Therefore, the function of these devices - prototypes is to be a focus of technological knowledge of high added value through testing, research and development of these new production technologies through the use of marine energies, to ensure that In the future, marine energy is an alternative source that can be implemented not only in the Basque Country but also in all those places where there is potential for the use of this energy.
Therefore, the results of this operation, in addition to contributing to technological improvement in the Basque Country, do so by establishing a much broader field of action that reaches the national, European and even international territory in the medium and long term.

5. It has a high degree of coverage on the population to which it is addressed

Through the investment made and according to the results obtained by this operation, the level of technological knowledge in this area has increased. This increase will have effects in both national and international markets. In short, advances the state of research so the global situation advances benefiting society as a whole.
The medium-term objectives will therefore be to access niche markets, oriented to locations with energy deficits (such as islands or isolated areas of the coast), as well as isolated marine facilities (fish farms, oil platforms, etc ...), while in the long term, these devices are a real alternative for wave energy parks (wave) connected to the network.
Thus, this type of technology has the interest of the international and national scientific community, since one third of the world's population lives near the coast, and because, according to many of the studies on this matter, one would be in a position to obtain a average of 8 kW per meter of coastline, in addition to which its use could allow the proximity of electric generation, thus reducing 10% of the losses generated in transport and distribution.

6. Horizontal criteria of equal opportunities and environmental sustainability have been taken into account

In relation to the principle of equality of opportunities between men and women and non-discrimination, compliance with the provisions of public procurement procedures regarding the participation of companies that have not committed infractions in terms of sex discrimination or breach of the obligations set forth in the Law in this matter, including supporting documentation in which they declare compliance with the regional, national and community regulations in force regarding the promotion of equality between women and men and non-discrimination, and to promote the development sustainable in order to comply with these horizontal principles.
From the perspective of the principle of sustainable development and given the important expectations in this sector, the development of the wave industry is one of the energy areas in which it will be possible to consolidate a scientific and technological offer and the creation of a value chain in the Basque Country in this sector.

7. Synergies with other policies or instruments of public innovation

In the first place, it should be noted that the development of the prototype technology has been carried out through a pre-commercial public purchase system. This system is very useful in those technological areas of testing, where the technological results are not yet mature and therefore it is easier to approach them from the public administration itself and direct the results towards the interested private sector.
It should also be noted that the passage of different technologies through the facilities of BiMEP (platform where the collectors are located) is the necessary link so that they can prove their validity and reach higher maturity levels. Note that before reaching the test area, it is necessary to carry out tests on tanks with prototypes on a reduced scale that allow to correct designs and reach scales closer to reality in the prepared area. For this reason, the strategic agreement with the Cantabrian Hydraulic Institute Foundation has allowed offering services throughout the value chain in the research field, by offering tank testing for small scales and open sea trials for large-scale or full-scale prototypes. in the test area.
Finally, emphasize that the testing activities of the device are part of the European project OPERA (Open Sea Operating Experience to Reduce Wave Energy Cost), funded by the research and innovation program Horizon 2020. This project is in line with the This operation is co-financed since both are coincident in the objective of developing technologies that allow the reduction of operating costs at sea and that open the way to a reduction of long-term energy costs of more than 50%, accelerating the establishment of international standards and reducing uncertainties and technological risks, both of the operations at sea and of the business benefit that can be deduced from these experiments.

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