

PROYECTO DE INVERSION #340

Development of a device for harnessing wave energy to be converted into electrical energy

Sector

RENEWABLE ENERGY

Subsector

OTHER RENEWABLE ENERGY

Brief description of the business opportunity

Wave energy technology has not reached maturity in the technology market yet. Therefore, new technological developments which harness this type of energy are potentially competitive, especially considering our team's technical expertise and our devices' low cost, low maintenance and long lifespan. The project involves the development of a wave energy harnessing device at 1:1 scale using the know-how acquired by the promoter and the experience gained during the development stage years. In addition, the project includes the installation of the equipment on Argentine coasts in order to facilitate its monitoring and to supply electricity to consumers in the area. A further stage would be to sign contracts in order to sell the equipment to other users. The income model will consist of the, installation, sale, operation and maintenance of the equipment and/or the sale of electrical energy to large consumers.

Brief description of the product/service

Our project consists of a device for wave energy harnessing that converts sea wave energy into mechanical energy and then into electricity at the site of capture. This device consists of two shipbuilding steel buoys. They are hollow and filled with polyurethane foam and they weigh 10 tons each. Such buoys generate a thrust equal to their weight, thus keeping the torque constant in the axis of the lever arm, both in the ascent and descent buoy. As the buoys are traversed by ocean waves, they describe a vertical movement, which depends on the wave height, and their travel speed will depend on the duration and size of the wave. Initially, the research work entailed the development of a 1:20 scale prototype. The next step was the construction of a 1:10 scale prototype, completed in 2014. In addition, laboratory tests designed to gain detailed insights into the performance and behavior of mechanical parts under different operating conditions for wave simulations are scheduled for 2015.

Brief description of the target market(s) of the product/service

Target markets for this technology are countries with coastlines, especially high waves, such as Argentina, Chile, Uruguay, Brazil, Peru, USA, Mexico, Canada, Australia, New Zealand, Spain, Portugal, Germany, UK, France, China, Japan and Russia.

Brief description of the advantages of the company or cooperative to carry out the investment project

A patent for the device was granted by Argentina's National Institute of Industrial Property (INPI) and published in its Official Gazette in February 2013.

Brief description of the context of the investment opportunity

The factors supporting the success of this enterprise are the new technology, capable of transforming a renewable and free resource, i.e. sea waves; the simplicity of the technology development; its long lifespan; and the fact that it is economical, exportable and that it may be installed in any coastal region. Argentine coasts offer a competitive advantage for monitoring and making adjustments to the equipment. An economic-financial study, providing more details on the equipment's manufacturing, assembly and operation at

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1:1 scale, is currently being conducted.

More information about the investment project

City/Area: Necochea - Quequén, Buenos Aires, Argentina

Total amount of the Investment Project: US\$ 607.500,00

Minimum amount required from investor: US\$ 583.200,00

Payback period: N/A

Purpose of the Investment: New productive unit, Upgrading of existing products/services, Development of new products/services, Breaking into new markets in Argentina, Breaking into new foreign markets, Other (specify) - manufacturing & assembly of a 1:1 scale prototype

Destination of the Investment: Machinery and Equipment, Vehicles and Transport Equipment, Information and Communications technology, R&D and innovation activities, Intangible Assets (Patents, Licenses), Sales and Marketing, Other (specify) - manufacturing & assembly of a 1:1 scale prototype

Investment Project's stage of development: Advanced development - Initially, the research work entailed the development of a 1:20 scale prototype. A patent for the device was granted by Argentina's National Institute of Industrial Property (Instituto Nacional de Propiedad Industrial, INPI) and published in its Official Gazette in February 2013. The next step was the construction of a 1:10 scale prototype, completed during 2014. In addition, laboratory tests designed to gain detailed insights into the performance and behavior of mechanical parts under different operating conditions for wave simulations are scheduled for 2015.

Brief description of the main stages of the project:

Year	Amount	Destination
1	255.100,00	Engineering and equipment manufacturing 1:1 scale prototype, R&D electronic components and CFD studies.
2	194.400,00	Equipment manufacturing 1:1 scale prototype and test parts. Selection of electrical and electronic components.
3	158.000,00	Installation commissioning and dissemination. Search facility interested in future equipment in series.
4		
Rest		
Total	607.500,00	

Type of public incentives available for the Investment Project: Tax breaks, Financial facilities, Investment reimbursement, N/A

Type of investor required for the project: Investor interested in renewable energy. The use of sea waves ranks high as a feasible alternative within the renewable energy sector. Currently within the marine scenario,

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the most established projects involve wind mid-shore and off-shore wind energy. In addition, ventures for harnessing energy from currents and wave energy are strengthened every day even though they still need to be rendered competitive. However, the depletion of hydrocarbon resources forces us to think ahead about the study of other resources in order to prepare for the future. Ocean energy can be defined as energy derived from technologies that utilize seawater as their motive power. This ocean wave energy is energy that has been transferred from the wind to the ocean. As the wind blows over the ocean, air-sea interaction transfers some of the wind energy to the water forming waves, which store this energy as potential energy and kinetic energy.

Información de la entidad promotora del proyecto de inversión

Entidad promotora de este proyecto: Organismo Público Nacional

If you're interested in learning more about this project, send an email to bapip@mrecic.gov.ar