

PLOCAN MARINE TEST SITE FOR WAVE AND WIND ENERGY

Japan and Spain Collaboration:
Opportunities in Offshore Wind Energy

15 December, 2016
Madrid, Spain

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Japan and Spain Collaboration: Opportunities
in Offshore Wind Energy
15 December, Madrid, Spain

Outline

1. Definition
2. Main Capacities & Services
3. Wave Energy Converters Tests
4. Offshore Wind Projects
5. PLOCAN & JAPAN cooperation



Definition



National Government (50%)

50 M€
2007-2021



(50%) Regional Government



Spanish Network of Unique Scientific and Technical Infrastructures (ICTS):

- Unique research facilities
- Specialized Scientific fields
- Demand high level of investment
- Dedicated to cutting-edge science and technologies
- Foster socio-economical growth and development



The main objective : design, construction, equipment and exploitation of an offshore platform for Research & Innovation in the marine science and technologies.

Capacities & Services

Provide ACCESS TO....



MARITIME TECHNOLOGIES
FOR SCIENCE & INNOVATION



MONITORED & EXTENSIVE
STUDIED MARINE TEST SITE



R & D MARITIME PLATFORM



A COASTAL AND OPEN OCEAN
OBSERVATORY



TRANSVERSAL CAPACITIES &
TECHNOLOGIES: ICTs



SPECIALIZED TRAINING



OPEN INNOVATION
ENVIRONMENT

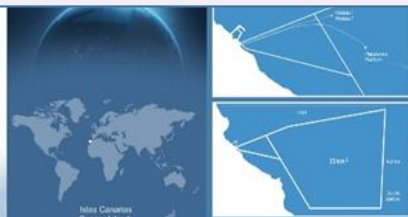
Capacities & Services

MONITORED & EXTENSIVE STUDIED MARINE TEST SITE

Marine test-site

El banco de ensayos de PLOCAN en alta mar presenta un área de 23 km², y está situado a 3 millas náuticas de la sede en tierra de PLOCAN y también bastante cerca del puerto principal de la isla de Gran Canaria (Puerto de Las Palmas). La zona ofrece profundidades progresivas desde la costa hasta 600 m (pudiendo trabajar a profundidades mayores bajo petición) y está dedicado a estudiar el comportamiento y la eficiencia de los diferentes tipos de dispositivos y tecnologías marítimas, contribuyendo así a acelerar el proceso de su introducción en el mercado.

El área marina del banco de ensayos de PLOCAN se estudió exhaustivamente el objetivo de ofrecer un espacio idóneo en términos de logística, infraestructuras compatibles y conexión a la red. Además, la zona cuenta con excelentes condiciones ambientales que facilitan al menos 9 meses de ventana operativa y los recursos de energía eólica y ondulatoria (energía de las olas) ideales para las operaciones de ensayo/demonstración, que oscilan entre 300-400 W/m² para la densidad de energía eólica y de 4 a 8 Kw/m de energía ondulatoria.



PLOCAN Marine Test Site

The PLOCAN offshore test site area is 23 km², located 3 nautical miles from the PLOCAN Land Base and also quite near to the major harbor of Gran Canaria Island (Las Palmas Port). The area offers progressive depths from above up to 600 m (deeper upon request) dedicated to study the behaviour and efficiency of different types of maritime devices and technologies and contributing to speed up the process of their introduction into the market.

The marine area of PLOCAN test site was comprehensively studied with a view of offering an optimal space in terms of logistics, supported infrastructures and grid connection. In addition, the area has excellent environmental conditions facilitating at least 9 months of operational window and optimal wind and wave energy resources for testing/demonstration operations, which range from 300-400 W/m² for wind power density and from 4 to 8 Kw/m of wave power.

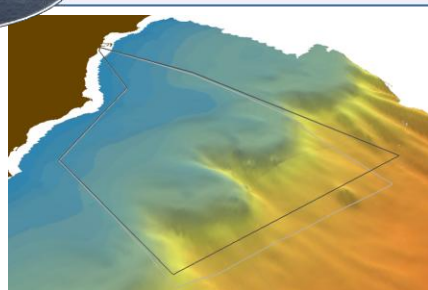


- 23 km²
- Cabled: 15MW
- Depth: 0 - 600



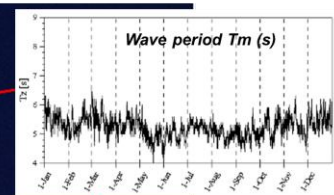


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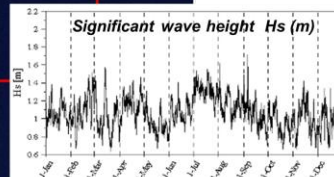


Capacities & Services

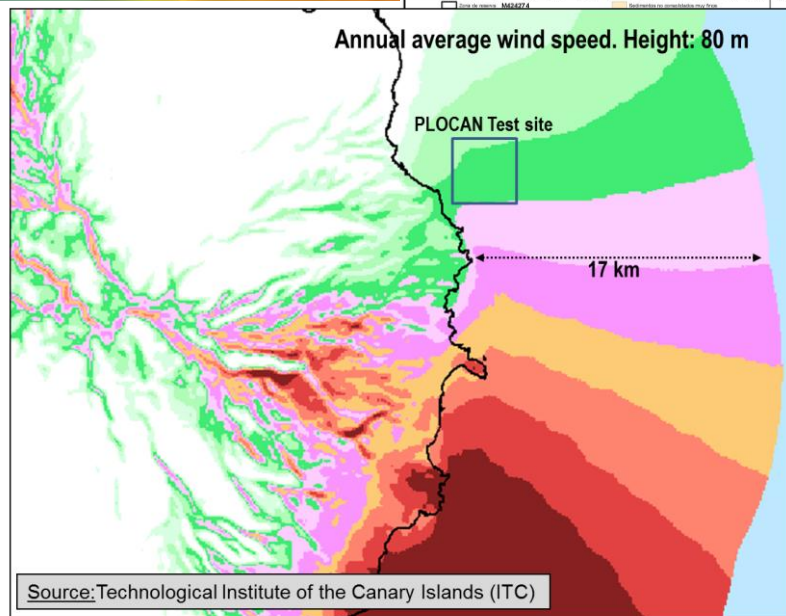
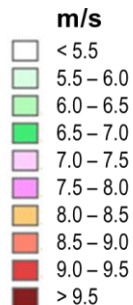
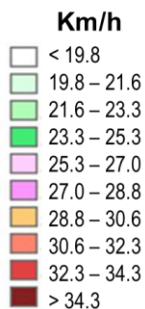
Time series: Feb 1992 - Sep 2014
Depth = 40 m



Average year

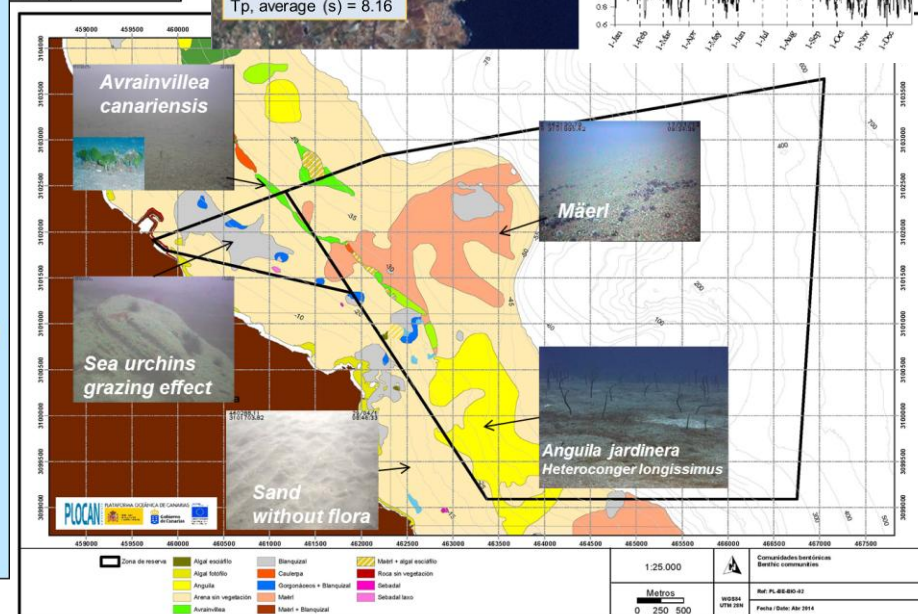


Hs, average (m) = 1.05
Tm, average (s) = 5.21
Tp, average (s) = 8.16



Source: Technological Institute of the Canary Islands (ITC)

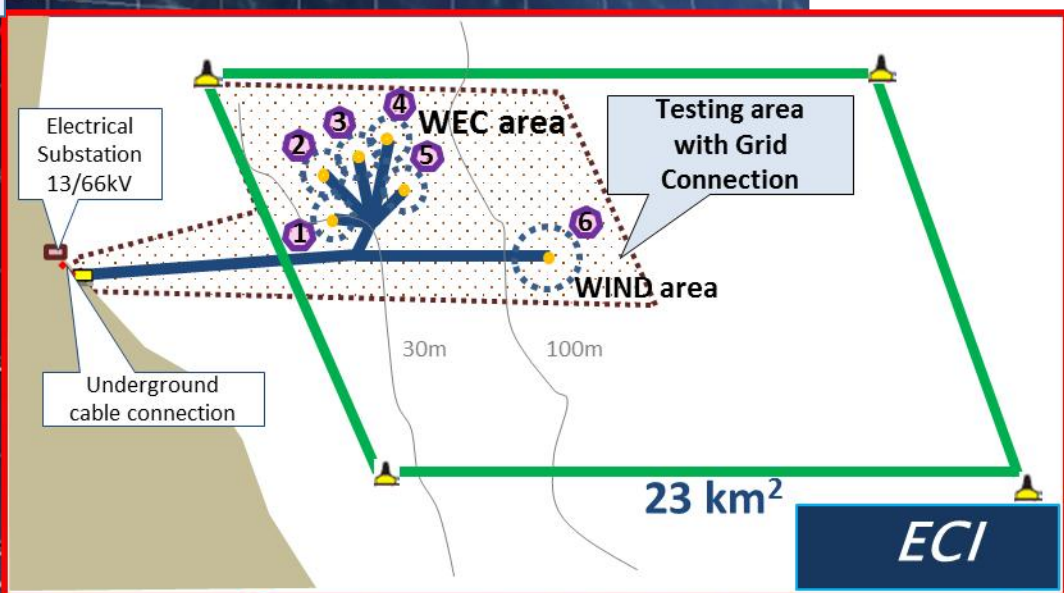
<http://hipocrates.itccanarias.org/recursoeolico/>



Capacities & Services



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STUDIED MARINE TEST SITE



Selection Criteria

Energy Resources

Grid Connection

Accessibility

Infrastructures/Logistics

Operational window

Uses

Excellent weather

Optimal Bathymetry



MONITORED & EXTENSIVE
STUDIED MARINE TEST SITE

Wave Energy Converters

WELCOME
Wave Energy Lift Converter Multiple España

INNPACTO WAVE ENERGY

Marine Renewables

Coordinator:

Pipo Systems S.L. (ES)

Partners:

Pipo Systems S.L. (ES) - FICOSA
(ES) - CEIB-UPC (ES) CIRCE (ES) -
PLOCAN (ES)





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Wave Energy Converters

UNDIGEN+

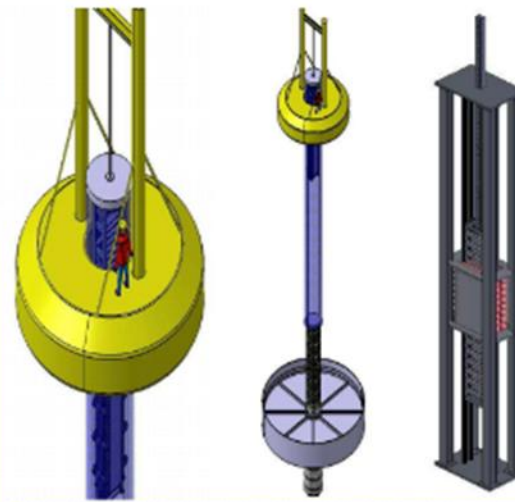
Marine Renewables

Coordinator:
Wedge Global S.L. (ES)

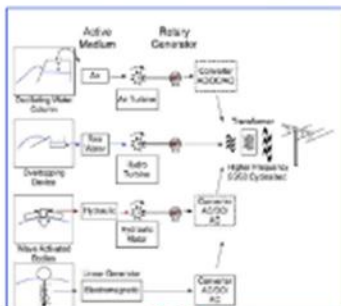
Partners:
Wedge Global S.L. (ES) - FCC (ES) -
CIEMAT (ES) - PLOCAN (ES)



Generador Lineal de Reluctancia Conmutada



REALISMO - SIMPLICIDAD - ESCALABILIDAD - EXPERIENCIA



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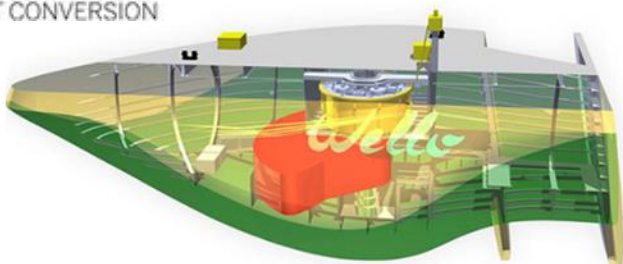




MONITORED & EXTENSIVE
STUDIED MARINE TEST SITE

Wello

DIRECT CONVERSION



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Wave Energy Converters



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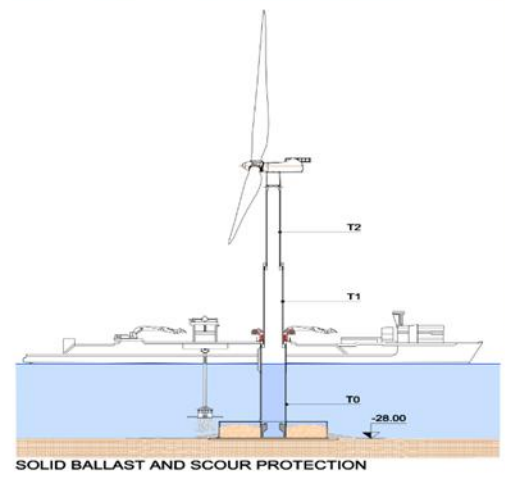
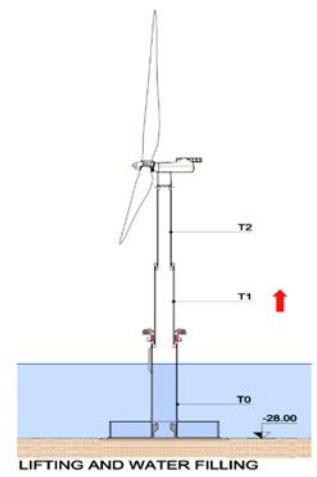
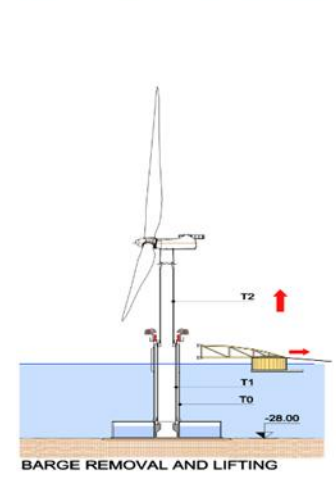


MONITORED & EXTENSIVE
STUDIED MARINE TEST SITE

Offshore Wind Projects



MELICAN
PROJECT



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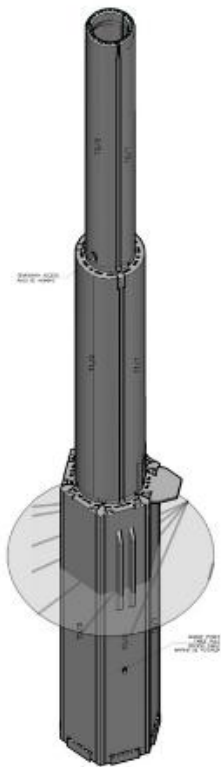
Offshore Wind Projects



ELICAN

PROJECT

THE ELICAN PROJECT HAS A TOTAL BUDGET OF 17,107,301.25 € AND WAS SELECTED FOR THE H2020-LCE-2015-2 CALL IN SEPTEMBER 2015. THE ACTION STARTED IN JANUARY, 2016 AND WILL LAST UNTIL DECEMBER, 2018.





MONITORED & EXTENSIVE
STUDIED MARINE TEST SITE

Offshore Wind Projects

FLOCAN-5

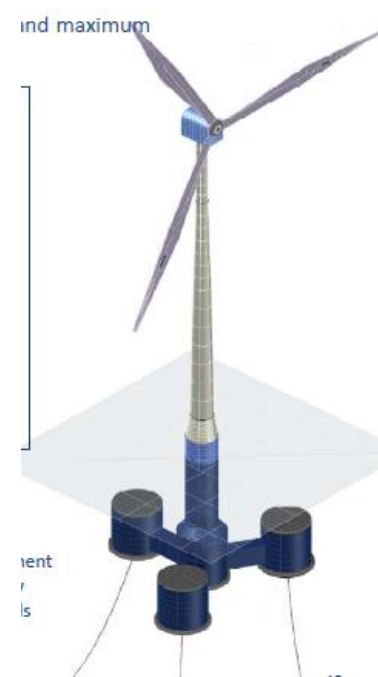
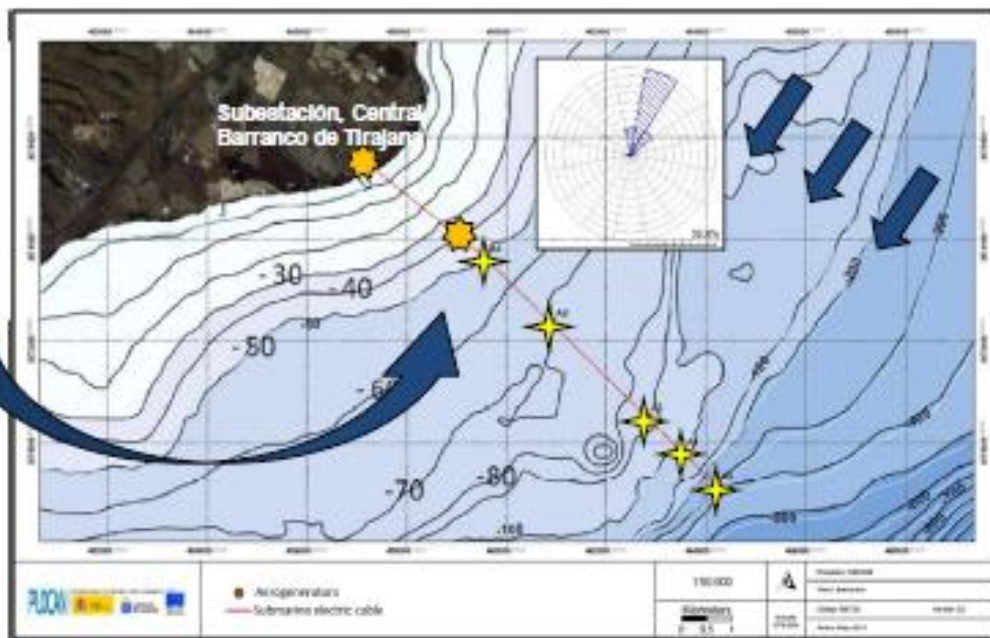


**European
Investment
Bank**

NER300



25 MW



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PLOCAN & JAPAN Cooperation



PLOCAN & JAPAN Cooperation

1st Visit



16 - 19 de June, 2014



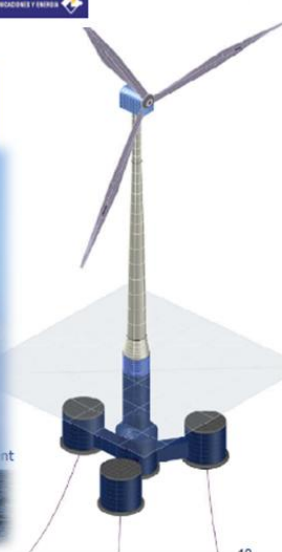
ECONOMIC AND
COMMERCIAL OFFICE
TOKYO

Marine Energy Japan Seminar
Marine Energy/ Wave Power

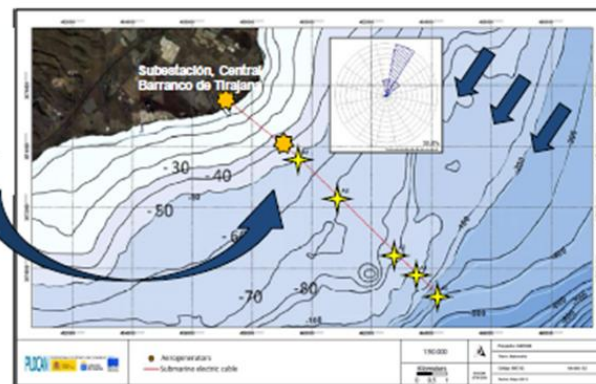
Date: June 16th 2014 (14:00-17:00)
Venue: Embassy of Spain in Japan; 3F, 1-3-29, Roppongi, Minato-ku, Tokyo, 106-0032
Organization: Economic and Commercial Office of the Embassy of Spain in Japan
Co-Organization: NEDO, OEAJ, JWEA



UNDIGEN



FLOCAN-5



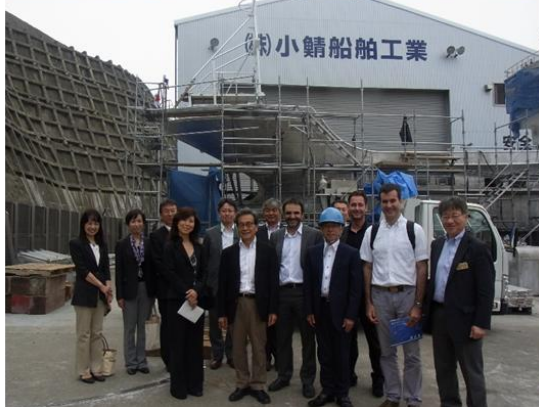
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PLOCAN & JAPAN Cooperation

1st Visit



16 - 19 de June de 2014

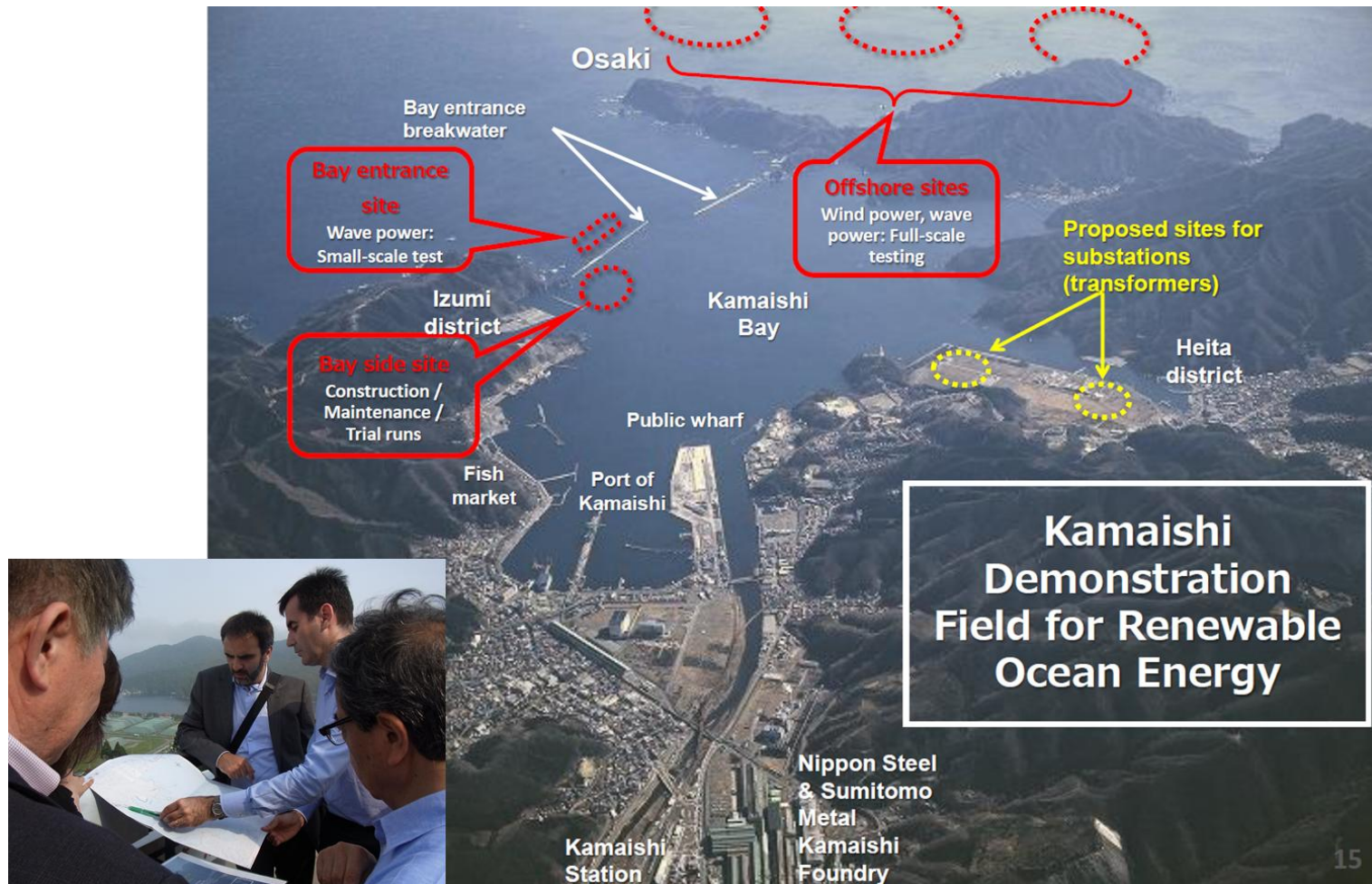


1 - ① Iwate's history with ocean energy

Year	Month	Iwate Prefectural Government	National Government
2007			Establishment of Basic Act on Ocean Policy in April
2008	Jun	Starting an association to develop ocean resources in Iwate	
2009	Dec	<u>Iwate Prefectural Government Long Term Plan</u> (Policies for developing ocean industry was decided in the plan)	
	Mar	<u>Guidelines for Promoting Local Innovation</u> (Environment and Energy Field were added to the guidelines)	
2011	Mar	<u>The Earthquake and Tsunami</u>	
	Aug	<u>Iwate Prefecture Great Earthquake East Japan Earthquake and Tsunami Reconstruction Plan</u> (Ocean Renewable Energy as a part of Sanriku Creation Project)	
2012		Survey for introducing ocean renewable energy in coastal area in Iwate	Policies for promoting utilize ocean renewable energy in Japan was decided in May
2013		Discussions with local organizations and fishing industry on Test Site Starting a feasibility study for wind farm in Hirono	
2014	Feb Dec	Applying National Government for Kamaishi Test Site Adoption of the NEDO Project	First Announcement of the selection in July
2015	Mar	<u>Cooperative Agreement with the University of Tokyo</u>	Second Announcement of the selection in April
	Apr Dec	<u>Selection of the Kamaishi Test Site</u> Starting an association to develop the ocean energy industry	

3

PLOCAN & JAPAN Cooperation



PLOCAN & JAPAN Cooperation

1st Visit



東京大学
THE UNIVERSITY OF TOKYO



R&D Japanese
Project

Role of NEDO



Ministry of Economy, Trade and Industry (METI)

Budget



Coordination with
policymaking authorities



Finance



Project
Management



Promotion of R&D

(Consortium)

Academia Industry Public research
laboratories

PLOCAN & JAPAN Cooperation

2nd Visit



18 – 20 March de 2015



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PLOCAN & JAPAN Cooperation



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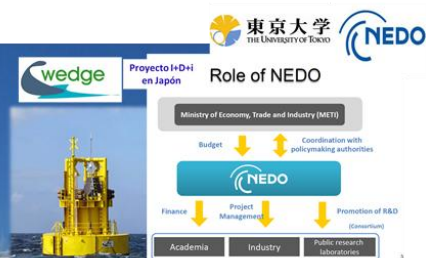
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3rd Visit



PLOCAN

20 - 22 de March 2016



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PLOCAN & JAPAN Cooperation

The Japanese ambassador to Spain, his deputy, and the new Japanese consul in the Canary Islands visit PLOCAN

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THANK YOU
for your
ATTENTION!

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