GOBIERNO DE ESPAÑA
MINISTERIO DE ECONOMÍA, INDUSTRIA Y COMPETITIVIDAD

MÉXICO
GOBIERNO DE LA REPÚBLICA

CONACYT
45 años

Joint Bi-Regional Pilot Call on Ocean Energy and Research Infrastructures (JBPC-OE&INFRA)

Joint Bi-Regional Pilot Call for projects carried out in large Research Infrastructures

ALCUE NET

CONACYT, 26-27 April 2017.
Mexico City

ERANet LAC

Rationale (1/2)

- The Brussels Declaration of June 2015 **acknowledges the progress in R&I between EU and CELAC countries**, who are allowing broadening and strengthening of a **Common Research Area** based on an increased
  - mobility of researchers,
  - exchange of information about best practices
  - capacity building
  - strengthened cooperation on science, technology and innovation.

- EU-CELAC **Common Research Area** focused on three commonly agreed strategic pillars, which are:

  a. Mobility of Researchers;

  b. **International outreach of Large Research Infrastructures;**

  c. Increased thematic cooperation to address global challenges

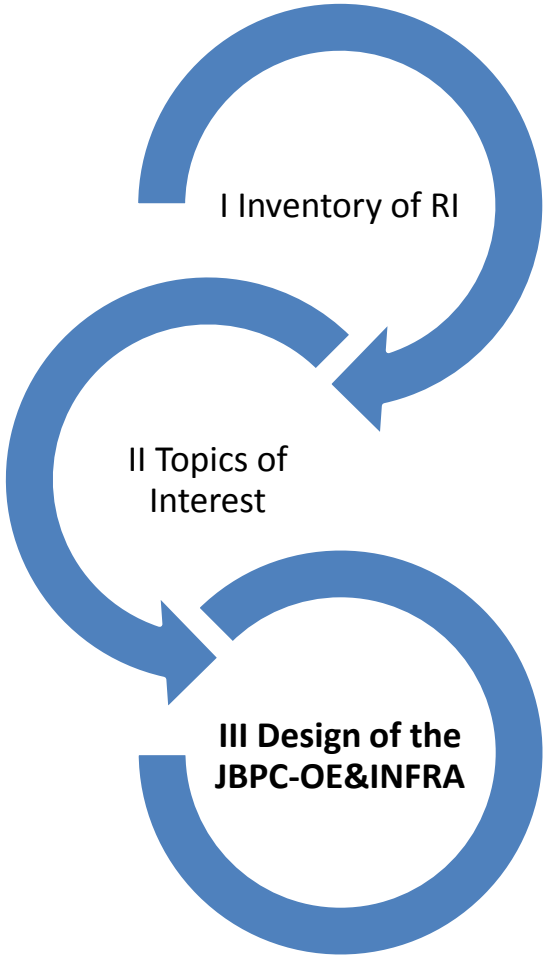
Rationale (2/2)

Under the pillar of Research Infrastructures, the EU and CELAC countries acknowledged the political and socio-economic importance **to promote access to Large Research Infrastructures** of global interest, to improve sharing of data and scientific excellence.

In this context, the Parties agreed on the importance of sharing good practices in mapping existing research infrastructures as well as in road mapping process and methodology.

Large Research Infrastructures provide unique opportunities for world-class research, training and capacity building as well as to stimulate knowledge and technology transfer.

Actions

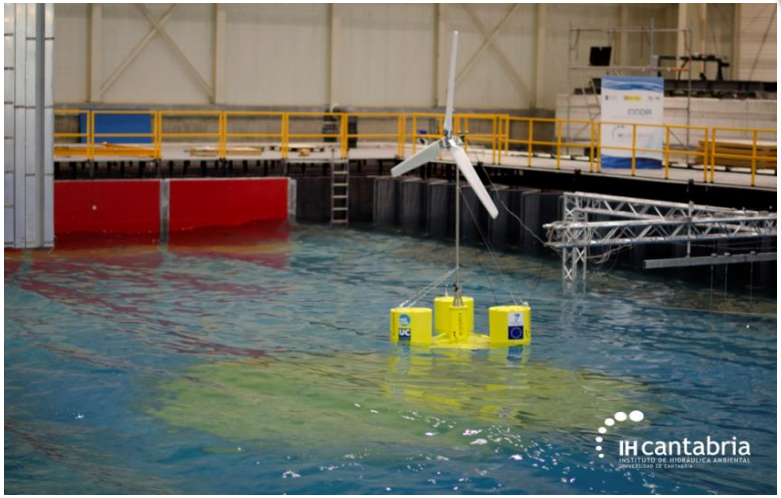


- CONACYT and MINECO, as leaders of the JIRI of energy, are exploring a first inventory of Energy National Research Infrastructures wishing to join this ERANET initiative.
- The lines and topics of EU-CELAC common interest in the field of expertise of the RI participants will be defined by convening a bi-regional technical validation.
- Preparation of a call following the ERANET scheme, taking into account, as the major reference, the recommendations and general methodology for the ERANET LAC joint calls, and in combination with the expertise accumulated within ALCUENET project.

I Inventory of RIs

To date, 3 RIs have been selected:

- CCOB (IH CANTABRIA). Spain
- PLOCAN. Spain
- **Wave Flume Facility** of the Instituto de Mecánica de Fluidos e Ingeniería Ambiental. Universidad de la Republica. Uruguay.



PLOCAN (Oceanic Platform of the Canary Islands) and CCOB (Cantabria Coastal and Ocean Basin)are included in the in the Spanish Map of Unique Scientific and Technical Infrastructures (ICTS).

http://www.idi.mineco.gob.es/stfls/MICINN/Innovacion/FICHEROS/ICTS_ing.pdf

II R&I needs

1 VALIDATE COMPUTATIONAL MODELS IN LABORATORY AND FIELD FACILITIES

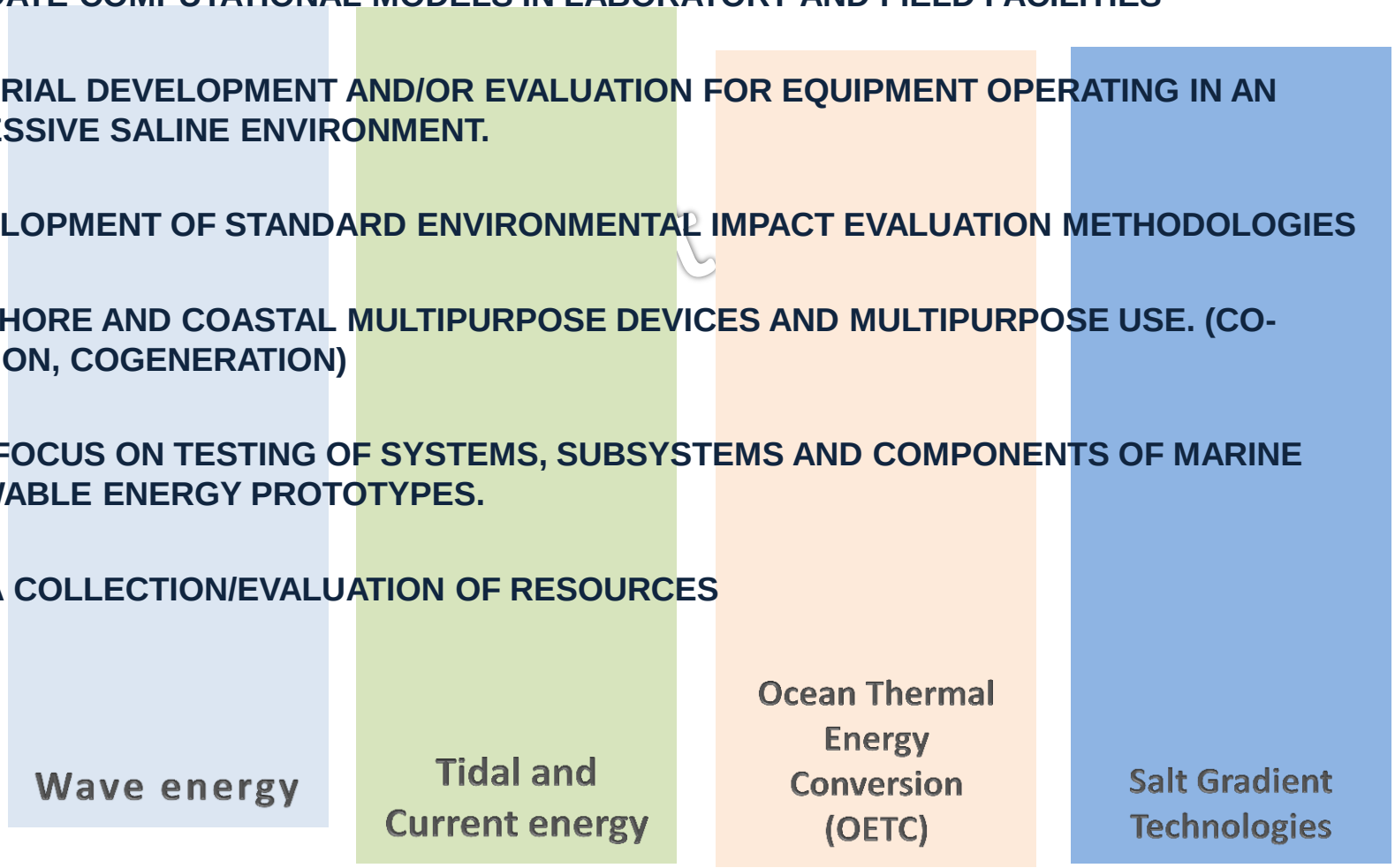
2 MATERIAL DEVELOPMENT AND/OR EVALUATION FOR EQUIPMENT OPERATING IN AN AGGRESSIVE SALINE ENVIRONMENT.

3 DEVELOPMENT OF STANDARD ENVIRONMENTAL IMPACT EVALUATION METHODOLOGIES

4 OFFSHORE AND COASTAL MULTIPURPOSE DEVICES AND MULTIPURPOSE USE. (CO-LOCATION, COGENERATION)

5 R&D FOCUS ON TESTING OF SYSTEMS, SUBSYSTEMS AND COMPONENTS OF MARINE RENEWABLE ENERGY PROTOTYPES.

6. DATA COLLECTION/EVALUATION OF RESOURCES



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Transnational call on marine energy

- Topic: ***Development of technologies for the energy valorization of marine resources within existing large research infrastructures.***
- The efforts towards the development of wave, tidal and current, ocean thermal and salt gradients energy production devices will be focused on the following aspects or subtopics:
  - Subtopic 1: Validation of computational models in laboratory and field facilities
  - Subtopic 2: Material development and/or evaluation for equipment operating in an aggressive saline environment.
  - Subtopic 3: Development of standard environmental impact evaluation methodologies.
  - Subtopic 4: Offshore and coastal multipurpose devices and multipurpose use. (co-location, cogeneration) .
  - Subtopic 5: R&D focus on testing of systems, subsystems and components of marine renewable energy prototypes.
  - Subtopic 6: Data collection/evaluation of resources

1	Validate computational models in laboratory and field facilities
Specific challenge: Why this topic is relevant and which societal challenges does it address?	• The numerical models must be accurate to describe key parameters for marine energy systems. • The computational model should be calibrated and validated with data from measurements and/or experiments • Improving human resources specialized in the area of computational modelling applied to ocean energies.
Scope: Added value gained from EU-CELAC cooperation for both regions	• The computational models will be usable for both regions, enhancing the accuracy of predicting energy production. • Preparation of specialized human resources in both regions through the exchange of knowledge on these topics and complementing the work done.
Expected impact for both regions:	Computational model development will provide a tool to decrease the costs of ocean energy exploitation by: • anticipating the performance of the technologies, • increasing the efficiency of the technologies, • predicting and/or minimizing negative impacts on the environment, • strengthening the capabilities of human resources • optimizing solutions for the development of the technology.
Type of action suggested: Research project, networking activities, mobility etc.	• Research project, networking activities, mobility etc. Research projects for data collection linked to research infrastructures (RI) for the calibration and validation of the models. • Development of a jointly-shared repository of the computational model developments for use by members within the collaboration.

2	**Material development and/or evaluation for equipment operating in an aggressive saline environment.**
Specific challenge: Why this topic is relevant and which societal challenges does it address?	• Development/testing of materials to improve economic viability of marine devices. • Biocorrosion / biofouling protection. • Abrasion. • Durability in aggressive marine environments robustness in extreme conditions linked to ocean technologies. • Human resources for the development of materials.
Scope: Added value gained from EU-CELAC cooperation for both regions	The development of know-how regarding to existing and new ocean device materials applied to the wide range of technologies and sea conditions in both regions.
Expected impact for both regions:	Identification and/or development of suitable materials for marine energy devices. Uses of more adequate high-quality materials for devices
Type of action suggested: Research project, networking activities, mobility etc.	Research project, networking activities, mobility etc. Research and pilot projects for developing/testing new materials. Collaboration of academia and industry in the identification, development and production of high-quality, low cost materials

3	**Development of standard environmental impact evaluation methodologies.**
Specific challenge: Why this topic is relevant and which societal challenges does it address?	The homologation of environmental methodologies and techniques must consider the differences within the countries of two regions. While the key points for environment evaluation are not necessarily common to all locations, generating these methodologies will ensure the minimization of the negative impacts of ocean energy exploitation and the selection/evaluation and data development for life cycle analysis (LCA)
Scope: Added value gained from EU-CELAC cooperation for both regions	• The conservation and maintenance of environmental conditions and ecosystem services • Ocean energy systems will be introduced through a multidisciplinary and holistic approach.
Expected impact for both regions:	• Conservation of natural environments • Better integration of the ocean energy systems into the marine environments.
Type of action suggested: Research project, networking activities, mobility etc.	Multidisciplinary work, research, field work and monitoring for the evaluation of potential impacts in the marine environment with close collaboration with activities in large research infrastructures (RI).

4	Offshore and coastal multipurpose devices and multipurpose use. (co-location, cogeneration) .
Specific challenge: Why this topic is relevant and which societal challenges does it address?	The development of combined systems able to harness marine energy as well as perform another function, such as coastal protection and marine aquaculture, in deep and coastal waters is the road that seems most viable to reduce production costs, enhance the efficiency of the devices and produce energy at competitive prices. Uncertainties remain regarding the physical and technical features of the multipurpose systems such as interconnection, operative hours, synchronization between components, effects on the marine area, etc. Experimental modelling is needed to better understand such devices prior to placing any in real sea conditions. As an examples of those combined system: - Hybrid "wave-wind" or "wave-current" devices - Utilizing wave or tidal energy converter for water desalination - Energetic and non-energetic combined exploitation on marine sites.
Scope: Added value gained from EU-CELAC cooperation for both regions	Preserve the marine environment and facilitate the development of its potential
Expected impact for both regions:	The multipurpose systems developed, tested, characterized and optimized can be implemented in both regions. They are envisaged as one of the most promising alternatives of low cost energy generation and synergies with other non-energetic utilization of the marine resources.
Type of action suggested: Research project, networking activities, mobility etc.	Research project, networking activities, mobility etc. Development of experimental models and prototypes capable of representing offshore conditions. Testing multipurpose devices focusing on the synchronization of components and strategies for dealing with hazards.

5	R&D focus on testing of systems, subsystems and components of marine renewable energy prototypes.
Specific challenge: Why this topic is relevant and which societal challenges does it address?	The development of really innovative concepts to increase economic viability. The testing of these systems, subsystems and components individually will be followed by implementation in a full-scale prototype (rephrase). Integration of innovative components in multiple prototypes would reduce costs. - Applying feasible control systems to increase the efficiency of the devices - numerical analyses and near-full scale testing of the array of wave or current energy converters - PTOS - Electricity/Energy storage systems to stabilize the power production - Innovative foundation structures for the current turbines to be installed in specific sites.
Scope: Added value gained from EU-CELAC cooperation for both regions	The innovative devices should provide better efficiencies, the consolidation of the technologies and technology transfer. Exchange of human resources could lead to the creation of complementary concepts resulting from the integrated needs of both regions.
Expected impact for both regions:	Reduction of costs for the development of prototypes, Technology exchange Open new markets for developers
Type of action suggested: Research project, networking activities, mobility etc.	Research project, networking activities, mobility etc. Testing/validation/demonstration of innovative prototypes in real environment. Improvement of testing capabilities and the development of prototypes in connection with research infrastructure.

6	Data collection/evaluation of resources
Specific challenge: Why this topic is relevant and which societal challenges does it address?	Data collection is vitally important for the estimation and assessment of resources. However the availability of data, its measurement or its collection is non-existent, scarce or its quality does not fulfil the needs of the technological development/design. Without adequate data collection resource evaluation will be faulty and the design of technologies will not be optimum.
Scope: Added value gained from EU-CELAC cooperation for both regions	Better understanding of processes affecting the development of technologies will be reached. Moreover, these technologies will be optimized for the particular conditions in which they will be placed. Consequently, better performance can be expected as well as the adaptability of the devices to a different and/or particular working conditions. The data collection and resource evaluation will produce information that is also useful for other purposes (e.g. environment conservation, monitoring of resources, sustainability).
Expected impact for both regions:	For both regions this offers generation of knowledge highly valuable for both regions in scientific, environmental and technology development; monitoring and determination of specific sites with the potential for the implementation of strategies focused on the harnessing of ocean energy; assessment of the impact of technologies through the comparison between a non-intrusive scenario and a modified one.
Type of action suggested: Research project, networking activities, mobility etc.	Research project, networking activities, mobility etc. Research projects and networking activities should be conducted with focus on the recompilation of already existing data or previous evaluation of resources (state of the art), measurement and data collection of already known sites with the potential for the implementation of technologies for ocean energy exploitation, resource evaluation (local and regional scale) considering the temporal variations of the resources. The networking activities should enhance the capacity for the data collection and the techniques for analysis/evaluation of the resources. Research projects should be developed for specific data collection, with clear objectives and methodologies. The research projects can also serve as a starting point for the development of networking activities.

Also, it is highly recommended to include any of those cross-cutting aspects in order to cover the previously identified R&I needs

	Cross-cutting aspects related to the call
Specific challenge: Why this topic is relevant and which societal challenges does it address?	Harmonization of best-practices and processes. Socio-ecological issues Site selection. Non-technological barriers
Scope: Added value gained from EU-CELAC cooperation for both regions	Added value gained from EU-CELAC cooperation for both regions Evaluation and enhancement of the social, economic and environmental impact in both regions of the technical developments in the projects Increase social acceptance of marine technologies in both regions. Enhance technical, social and economic exchange between both regions
Expected impact for both regions:	Reduction in negative effects in both social and environmental aspects Better acceptance of the technology developed Development of common, harmonise future market for marine technology and services. Establishing the bases for potential common standards for data and process definition in both regions, and best-practices for future system and subsystems certification. Technological exchange regarding the performance of marine devices in real conditions,
Type of action suggested: Research project, networking activities, mobility etc.	Research project, networking activities, mobility etc. It is encourage and recommended to consider at least any of those cross-cutting topics into the project to enhance the exchange of information and to provide a channel for communication in order to improve the project impact.

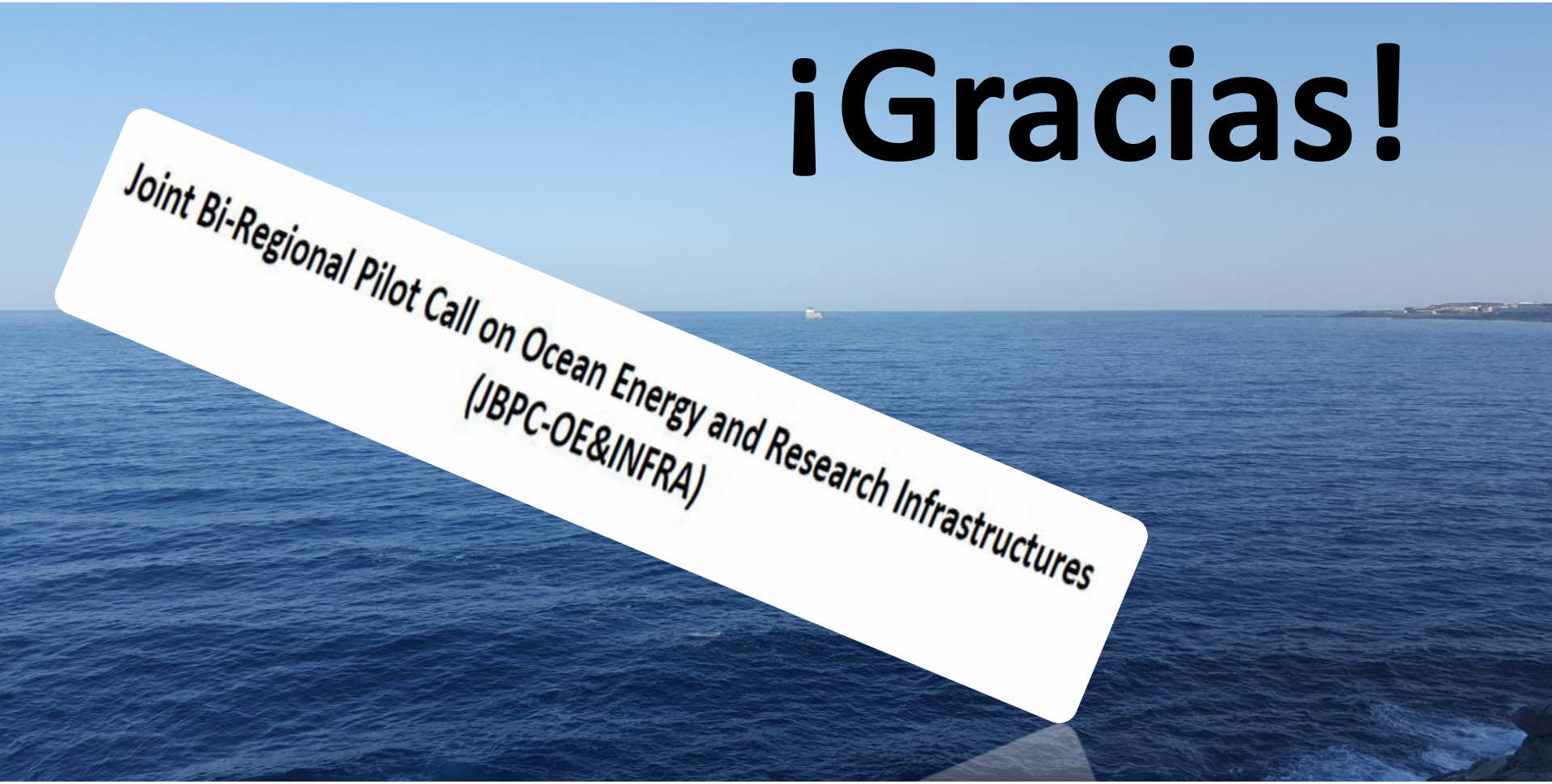
III Design of the JBPC-OE&INFRA (1)

- The proposals must include the use of the large Research Infrastructures (RIs) selected and listed in the ToR of the call. Only proposals that require the use of one of the available RIs to carry out the projects will pass to the evaluation stage.
- Consortia must involve at least 4 different countries: 2 from both EU and 2 from CELAC.
- All expenses incurred by the RI directly related to the project will be financed by the corresponding consortium.
- The Call Secretariat will be coordinated by FECYT with the support of the Group of Funding Parties (GFP
- As a general rule, all projects will be managed according to ERANET LAC procedures.

Draft

Tentative calendar

DATE	ACTIVITY
26-27 April	Selection of topics & call procedure
April - May 2017	Formal commitment on the call participation, topics and the indicative financial contributions (26-27 April Meeting in CONACYT, Mexico)
15 June 2017	Definitive budget commitment
15 June 2017	Formulation of national funding rules
1 July 2017	Pre-announcement of Pilot Call
1 July 2017	Identification of experts and definition of the Scientific Advisory Boards of each topic
September 2017	Set up of online submission system (FECYT)
2 October 2017	Launch of the Pilot Call
30 November 2017	Closure of the Joint Call
January – February 2018	International and National Eligibility Check
January – February 2018	Technical feasibility check of the proposals (SAB)
March 2018	Evaluation of proposals based on the evaluation guidelines
April 2018	Scientific Evaluation Committee meeting and ranking list
May 2018	Funding agencies confirm projects´ funding according to ranking list
Oct 2018	Start of funded projects



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