

# Proposal Evaluation Form

|                                                                                   |                                                                                              |                                                               |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------|
|  | <b>EUROPEAN COMMISSION</b><br><br>Horizon 2020 - Research and Innovation Framework Programme | <b>Evaluation<br/>Summary Report -<br/>Innovation actions</b> |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------|

**Call:** H2020-LC-GD-2020-1  
**Type of action:** IA  
**Proposal number:** 101037766  
**Proposal acronym:** HYPOT  
**Duration (months):** 48  
**Proposal title:** Ocean Renewable Energy Sources - Hydro Power Tower  
**Activity:** LC-GD-2-1-2020-IA

| N.     | Proposer name                                                                          | Country | Total Cost   | %      | Grant Requested | %      |
|--------|----------------------------------------------------------------------------------------|---------|--------------|--------|-----------------|--------|
| 1      | UNIVERSITA DEGLI STUDI DI PALERMO                                                      | IT      | 4,017,686.25 | 23.79% | 4,017,686.25    | 28.76% |
| 2      | CONSIGLIO NAZIONALE DELLE RICERCHE                                                     | IT      | 2,320,731.25 | 13.74% | 2,320,731.25    | 16.61% |
| 3      | RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN                                   | DE      | 603,750      | 3.58%  | 603,750         | 4.32%  |
| 4      | Sicilian region - Department of Energy                                                 | IT      | 220,625      | 1.31%  | 220,625         | 1.58%  |
| 5      | SERVIZI SPECIALI SRL                                                                   | IT      | 4,348,125    | 25.75% | 3,043,687.5     | 21.79% |
| 6      | TASARIM SIMULASYON TEKNOLOJILERI SANAYI VE TICARET AS                                  | TR      | 503,250      | 2.98%  | 352,275         | 2.52%  |
| 7      | ECOSISTEMAS VIRTUALES Y MODULARES SL                                                   | ES      | 479,598.75   | 2.84%  | 335,719.13      | 2.40%  |
| 8      | EFESTO                                                                                 | FR      | 3,689,175    | 21.85% | 2,582,422.5     | 18.49% |
| 9      | Avapa Energy Srl                                                                       | IT      | 435,000      | 2.58%  | 304,500         | 2.18%  |
| 10     | LASER CONSULT MUSZAKI-TUDOMANYOS ES GAZDASAGI TANACSADO KORLATOLT FELELOSSEGU TARSASAG | HU      | 269,167.5    | 1.59%  | 188,417.25      | 1.35%  |
| Total: |                                                                                        |         | 16,887,108.7 | 5      | 13,969,813.8    | 8      |

## Abstract:

The increase in pollution from human activity is pushing humanity to the search for less polluting energy carriers. Hydrogen is one where the greatest attention is placed. It is a very present element on the planet, but not in pure form. It is therefore an energy vector capable of transporting and conserving energy. This must be obtained from other sources, such as renewable sources. The latter are available widely on earth, but are not programmable and are discontinuous. Their combination with hydrogen allows to reduce this limit considerably. The energy produced by renewable sources (solar energy, wind, marine, or river currents) can be transformed into H2 and conserved for months. Then, the H2 can again be converted to energy by the use of fuel cells. The electricity generation systems that use the sea currents (Hydro-power towers -HPT) are interesting to provide electricity in coastal areas. The transformation of the momentarily produced excess into H2, which can then be transformed into electricity, makes it possible to make the best use of the energy produced by currents and tides. If they are built near ports, it may be able to supply the energy needs of the ports themselves (energy for ships, energy for heating and cooling buildings, etc). They can therefore reduce their ecological impact on the surrounding territories without impacting the landscape because they are placed underwater. Ports can therefore not only reduce their environmental impact, but also contribute to the spread of hydrogen throughout Europe. On the basis of fundamental and applied multi-disciplinary research, HYPOT examines the development of a new generation of environmentally friendly and cost-effective technologies and autonomous energy systems, a Hydro Power Tower based on the use of kinetic and potential energy of bottom and surface currents arising from temperature differences and pressures on different depths of seas and continental rivers.

## Evaluation Summary Report

### Evaluation Result

**Total score: 6.50 (Threshold: 10)**

### Form information

#### SCORING

Scores must be in the range 0-5.

#### Interpretation of the score:

- 0** The **proposal fails to address the criterion** or cannot be assessed due to missing or incomplete information.
- 1 Poor.** The criterion is inadequately addressed, or there are serious inherent weaknesses.
- 2 Fair.** The proposal broadly addresses the criterion, but there are significant weaknesses.
- 3 Good.** The proposal addresses the criterion well, but a number of shortcomings are present.
- 4 Very good.** The proposal addresses the criterion very well, but a small number of shortcomings are present.
- 5 Excellent.** The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.

### Criterion 1 - Excellence

Score: **2.00** (Threshold: 3/5.00 , Weight: -)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the topic description in the work programme:

**Clarity and pertinence of the objectives**

**Soundness of the concept, and credibility of the proposed methodology**

**Extent that proposed work is beyond the state of the art, and demonstrates innovation potential (e.g. ground-breaking objectives, novel concepts and approaches, new products, services or business and organisational models)**

**Appropriate consideration of interdisciplinary approaches and, where relevant, use of stakeholder knowledge and gender dimension in research and innovation content**

*Overall, the proposal broadly addresses the criterion. In particular:*

- The innovation potential is credible. The closed duct vertical turbine could realistically be applied to a variety of applications including river applications and new composite materials based on natural hemp and linen which will be tested and these could credibly be used for many Ocean Energy applications.*
- The use of stakeholder knowledge is convincing. The knowledge of key stakeholders (e.g. a hydro power technology developer, a power to hydrogen technology developer, electrical utility, experts in LCA and SLCA analysis) is appropriately included and used at each stage of the project.*

*Nevertheless, significant weaknesses are present, namely:*

- The methodology is not convincing. For example, the location of the off-shore demonstration site is not sufficiently defined to be credible. Furthermore, marine spatial planning issues are insufficiently considered.*
- The efficiency of the system is not sufficiently substantiated to be credible as the rated power is significantly higher than the maximum theoretical power achievable.*

## **Criterion 2 - Impact**

Score: **2.50** (Threshold: 3/5.00 , Weight: -)

The following aspects will be taken into account:

**The extent to which the outputs of the project would contribute to each of the expected impacts mentioned in the work programme under the relevant topic**

**Any substantial impacts not mentioned in the work programme, that would enhance innovation capacity, create new market opportunities, strengthen competitiveness and growth of companies, address issues related to climate change or the environment, or bring other important benefits for society**

**Quality of the proposed measures to:**

- exploit and disseminate the project results (including management of IPR), and to manage research data where relevant**
- communicate the project activities to different target audiences**

*Overall, the proposal broadly addresses the criterion. In particular:*

- Contributions to environmental (e.g. GHG reductions), ecological, and social impacts are credible. For example, the ecological and social impacts are appropriately considered through a LCA and SLCA analysis.*
- The dissemination measures are appropriate. A wide range of key target groups including public authorities and policy makers, industrial stakeholders, facility managers, the scientific community, energy managers and energy modellers, and electricity companies have been appropriately identified. Furthermore, the number of expected scientific publications is well quantified.*
- The communication measures are appropriate. Relevant communication measures and strategies are identified to promote the project at the European level and to reach the largest possible audience. Communication impact reports will credibly be made to check the impact efficacy, and measures will be reviewed and amended in case of low impact.*

*Nevertheless, a significant weakness is present, namely:*

- The economic impacts are not sufficiently substantiated to be credible. For example, the proposal does not sufficiently substantiate the economic impacts with reference, for instance, to LCoE reductions, the vertical axis turbine, the electric generator, the converters, the transformers and the power umbilicals.*

## **Criterion 3 - Quality and efficiency of the implementation**

Score: **2.00** (Threshold: 3/5.00 , Weight: -)

The following aspects will be taken into account:

**Quality and effectiveness of the work plan, including extent to which the resources assigned to work packages are in line with their objectives and deliverables**

**Appropriateness of the management structures and procedures, including risk and innovation management**

**Complementarity of the participants and extent to which the consortium as a whole brings together the necessary expertise**

**Appropriateness of the allocation of tasks, ensuring that all participants have a valid role and adequate resources in the project to fulfil that role**

*Overall, the proposal broadly addresses the criterion. In particular:*

- In terms of the management structures, it is positive that the coordinator is appropriately supported by a Steering Committee, a Scientific and Technical Committee, and a Dissemination and Exploitation Manager. The chain of responsibilities is well defined and has been agreed in advance by the partners.*

- The resources (person-months and budget) assigned to work packages are credible and in line with their objectives and deliverables.

Nevertheless, significant weaknesses are present, namely:

- The work plan is neither sufficiently developed nor sufficiently aligned with the proposal objectives to be credible. For example, activities related to installation, operation and monitoring of the demo, and the assessment of the regulations and policy implications, are not sufficiently defined to be convincing. Furthermore, the project does not sufficiently highlight the links/interdependencies between work packages, such as through a critical path in the Gantt chart. Finally, many of the deliverables and milestones are not appropriately timed, with, for example, 4 milestones at the end of the project.
- An appropriately timed clear go/no go moment ahead of entering the deployment phase is not sufficiently defined.

#### Scope of the proposal

Status: **Yes**

Comments (in case the proposal is out of scope)

Not provided

#### Operational Capacity

Status: **Operational Capacity: Yes**

If No, please list the concerned partner(s), the reasons for the rejection, and the requested amount.

Not provided

#### Exceptional funding of third country participants/international organisations

A third country participant/international organisation not listed in [General Annex A to the Main Work Programme](#) may exceptionally receive funding if their participation is essential for carrying out the project (for instance due to outstanding expertise, access to unique know-how, access to research infrastructure, access to particular geographical environments, possibility to involve key partners in emerging markets, access to data, etc.). ( For more information, see the [Online Manual](#) )

Based on the information provided in the proposal, we consider that the following participant(s)/international organisation(s) that requested funding should exceptionally be funded:

(Please list the Name and acronym of the applicant, Reasons for exceptional funding and the Requested grant amount.)

Not provided

Based on the information provided in the proposal, we consider that the following participant(s)/international organisation(s) that requested funding should NOT be funded:

(Please list the Name and acronym of the applicant, Reasons for exceptional funding and the Requested grant amount.)

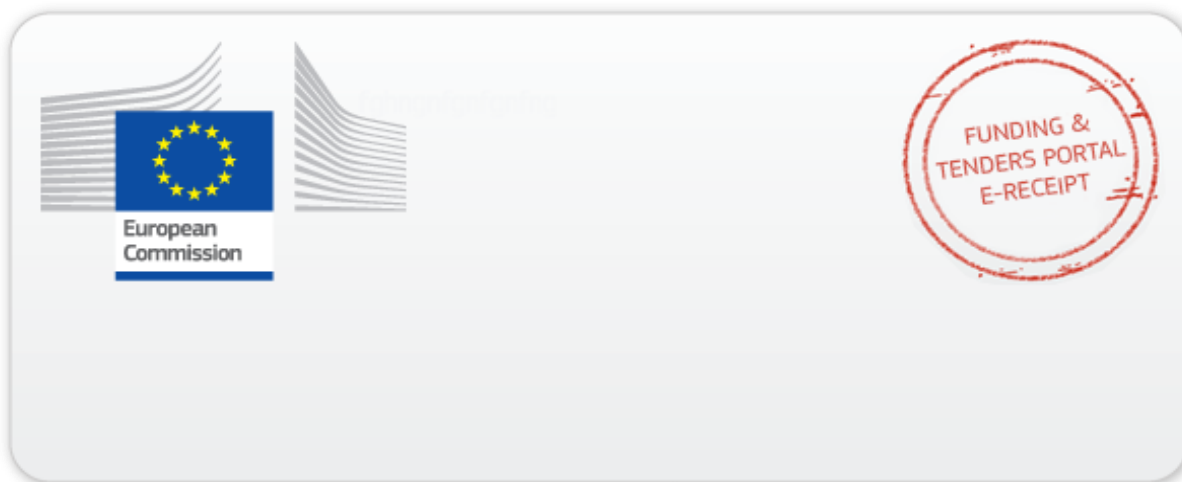
Not provided

#### Use of human embryonic stem cells (hESC)

Status: **No**

If yes, please state whether the use of hESC is, or is not, in your opinion, necessary to achieve the scientific objectives of the proposal and the reasons why. Alternatively, please state if it cannot be assessed whether the use of hESC is necessary or not because of a lack of information.

Not provided



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