

CALL FOR GRANT APPLICATIONS (AE2024-0479)

INESC TEC is now accepting grant applications to award 1 Post Doctoral Research Grant (BIPD) on the scope STORHY with reference 101172905 funded by the European Commission under the Horizon Europe program for the period 2021-2027.

1. GRANT DESCRIPTION

Type of grant: Post Doctoral Research Grant (BIPD)

General scientific area: ENGINEERING

Scientific subarea: Electrical engineering

Area of Work: Power Systems

Grant duration: 12 months, starting on 2025-01-01, with the possibility of being renewed for a maximum term of three years.

Scientific advisor: Bernardo Silva

Workplace: INESC TEC, Porto, Portugal

Maintenance stipend: € 1801,00, [according to the table of monthly maintenance stipend for FCT grants](#), paid via bank transfer. Grant holders may be awarded potential supplements, according to a quarterly evaluation process (Articles 19, 21 and 22 of the [Regulations for Grants of INESC TEC](#) and Annex II), up to a maximum limit of 50% of the monthly maintenance stipend.

INESC TEC supports costs with registration, enrolment or tuition fees, during the grant duration, under the terms established in the internal document: "[Payment of Tuition fees to grant holders](#)".

The grant holder will benefit from health insurance, supported by INESC TEC.

2. OBJECTIVES:

Comprehensive techno-economic evaluation of the innovative hydropower and PSP incorporating BESSs and PVs.

Lifetime extension of hydropower units and Pumped Storage Plants (PSP) integrated with Battery Energy Storage Systems (BESSs) and solar Photovoltaics (PV).

Assessing the economic benefits that could arise from the participation of hybrid innovative hydropower and PSPs in both day-ahead energy and ancillary service markets.

Development of control frameworks and energy management tools for innovative PSP and hydropower units, considering unit lifespan and potential participation in ancillary service markets.

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

Effective control and energy management of innovative hydropower and PSPs integrated with PV-BESS can reduce component degradation, extend plant lifespan, and positively impact the economic evaluation of these projects. However, optimized energy management and control strategies should be developed for these hybrid units to maximize benefits while considering wear and tear and the operational limitations.

Based on the descriptions, the expected work in this area is as follows:

Techno-economic evaluation of innovative hydropower and PSPs integrated with PV-BESS, considering various combinations of sources and different hydro/PSP technologies.

Assessment of the potential economic benefits of innovative hydropower and PSPs supported by PV-BESS through participation in ancillary service markets.

Development of frameworks and tools for the control and energy management of innovative hydropower and PSPs integrated with PV-BESS, participating in the ancillary service market while considering component degradation.

Preparation of reports and dissemination of project results via conference presentations and journal publications

4. REQUIRED PROFILE:

Admission requirements:

The PhD degree must have been obtained within the three years prior to the date of submission of the application and the research work leading to the award must have been carried out at a host entity other than INESC TEC.

Preference factors:

- Experience in research studies related to PSP and hydropower systems.
- Experience in team-based projects and collaboration with international partners.
- Experience in preparing deliverables and reports for European projects.

Minimum requirements:

- PhD degree in: Electrical Engineering; Energy Engineering; Industrial Engineering or similar.
- Experience in optimization studies for electrical energy systems.
- Experience in developing energy management frameworks.
- Experience in creating tools using Python or other programming languages.

5. EVALUATION OF APPLICATIONS AND SELECTION PROCESS:

Selection criteria and corresponding valuation: the first phase comprises the Academic Evaluation (AC), based on the criteria referred to in Article 12 of the [Regulations for Grants of INESC TEC](#), while the second phase comprehends the Individual Interview (EI). All factors are evaluated on a scale of 0 to 100, taking into account the applicants' merit, suitability and conformity with the preference factors.

The weight of the AC factors are as follows: Academic Qualifications (FA, 50%), Scientific Publications (PC, 20%), Experience (EX, 20%) and Motivation Letter (CM, 10%).

Candidates who score less than 50 points in the AC average will be considered excluded on absolute merit. The top five candidates approved on absolute merit will be qualified for the individual interview. The Final Grade (CF) is obtained by the weighted average of AC (80%) and EI (20%).

DISABILITY INCENTIVE

Candidates who present a degree of disability equal to or greater than 90% will benefit from an incentive (20) in the score of the CV Assessment.

Candidates who present a degree of disability equal to or greater than 60% and less than 90% will also benefit from an incentive (10) in the score of the CV Assessment.

Said score may, in these cases, exceed 100 points.

Candidates must demonstrate the degree of disability during the application, namely through the submission of the Multi-Purpose Medical Certificate of Disability, issued in accordance with Decree-Law no. 202/96, of October 23 - currently in effect.

Candidates must declare, in the application form, the type of disability used throughout the selection process, in order to proceed with the required adaptations.

The Selection Jury is composed of the following members:

President of the Jury: Bernardo Silva

Full member: Ehsan Kazemi-Robati

Full member: Tiago André Soares

Substitute member: Ricardo Jorge Bessa

Release of results and prior hearing: the results of the selection process, as well as the terms and procedures for prior hearing, will be released to the applicants by email, under the terms referred to in Article 13 of the Regulations for Studentships and Fellowships of INESC TEC.

6. FORMALISATION OF APPLICATIONS:

Application Documents:

1. Motivation letter;
2. Curriculum Vitae (must include the list of previous fellowships, their type, beginning and end dates, funding entities and host institutions);
3. Certificate or diploma degree;
4. Documental evidence to support the country of residence, residence permit or other legally equivalent document, in cases where the applicant is a foreigner or non-resident in Portugal - valid until the beginning of the grant.
5. Other supporting documents relevant to the final assessment.

Failure to deliver the required documents within the 90-day period after the date of the notice of the conditional awarding of the grant implies its cancellation.

Application period: From 2024-11-14 to 2024-12-14

Submission of applications: the application will be formalised by submitting the form available in the *Work With Us* section of INESC TEC website.

7. BINDING LEGISLATION AND REGULATION

The hiring process shall comply with the current legislation regarding the Research Grant Holder Statute, approved by Law no. 40/2004 of August 18, in its current wording, as well as by the [Regulations for Grants of INESC TEC](#) and for [FCT Grants Regulation in force](#).

For more information, please check the [Regulations for Grants of INESC TEC](#) and relevant annexes at www.inesctec.pt/bolsas



Funded by the
European Union