

CALL FOR GRANT APPLICATIONS (AE2025-0485)

INESC TEC is now accepting grant applications to award 1 Research Grant (BI) within the scope of the ATE funded by IAPMEI with reference 56 Co-financed by Component 5 - Capitalization and Business Innovation, integrated in the Resilience Dimension of the Recovery and Resilience Plan within the scope of the Recovery and Resilience Mechanism (MRR) of the European Union (EU), framed in the Next Generation EU, for the period 2021 - 2026.

1. GRANT DESCRIPTION

Type of grant: Research Grant (BI)

General scientific area: ENGINEERING

Scientific subarea: Electrical engineering

Area of Work: Electricity Markets

Grant duration: 7 months, starting on 2025-12-01.

Scientific advisor: Tiago André Soares

Workplace: INESC TEC, Porto, Portugal

Maintenance stipend: € 1309.64, [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:

- Develop advanced skills in the integration of Power-to-Hydrogen (P2H) systems within renewable energy communities.
- Analyse and model the coupling between electrical grids and hydrogen systems, assessing their impact on flexibility and energy stability.
- Support the development of energy management and optimization models to maximize self-sufficiency and minimize operating costs in hybrid energy communities.
- Evaluate the role of green hydrogen as an energy storage vector and as a driver of decarbonization in hard-to-electrify sectors.
- Consolidate skills in programming, simulation, and scientific communication, leading to the preparation of technical reports and scientific papers based on the project results

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

The integration of Power-to-Hydrogen (P2H) systems into energy communities is one of the most promising strategies for enhancing decarbonization, flexibility, and long-term energy storage in decentralized power systems. These systems enable the conversion of renewable electricity surpluses into hydrogen, which can be stored and later used for electricity generation, mobility, or industrial processes. However, effective P2H integration requires multidisciplinary modelling, accounting for the interactions between renewable generation, local consumption, and energy storage. This work plan aims to develop and assess operation and optimization strategies for P2H systems integrated within renewable energy communities, using simulation methodologies

and energy–economic performance analysis. The grantee will actively contribute to model implementation, scenario evaluation, and decision-support tools for sustainable community operation.

The main planned activities are:

- Reviewing the state of the art on hydrogen integration in renewable energy communities and related technologies (electrolysis, storage, reconversion).
- Modelling and simulating the coupling between electric and P2H systems, including electrolyzers, storage tanks, and fuel cells.
- Developing optimization and energy management models, considering renewable variability, load profiles, and operational costs.
- Assessing operational scenarios with different control strategies and green hydrogen penetration levels.
- Quantifying the technical, economic, and environmental benefits of P2H integration in energy communities.
- Preparing technical reports, scientific papers, and dissemination materials in collaboration with the research team.

4. REQUIRED PROFILE:

Admission requirements:

The awarding of the fellowship is dependent on the applicants' enrolment in study cycle or non-award courses of Higher Education Institutions.

Preference factors:

- Experience in renewable energy systems and integration of hydrogen technologies (Power-to-Hydrogen, P2H);
- Knowledge of planning and operation of hybrid energy systems (electric, thermal, and hydrogen);
- Experience in energy modelling and simulation using Python;
- Familiarity with optimization and energy management methods;
- Ability to analyse technical, economic, and environmental performance.

Minimum requirements:

- Basic knowledge of renewable energy systems and hydrogen technologies;
- Fundamental understanding of energy optimization and system simulation;
- Programming skills in Python;
- Fluency in English (written and spoken).

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, 10%), Experience (EX, 30%) 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 (90%) and EI (10%).

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: Tiago André Soares

Full member: Tiago Manuel Campelos

Full member: José Villar

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. Proof of enrollment in a degree awarding study cycle or in a non degree awarding Higher Education program.
 - The proof of enrollment may be presented just during the grant hiring stage.
5. Signed declaration stating the infringement of the grant holder's duties (article 14, no. 4)
6. 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.
7. 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 2025-10-23 to 2025-11-05

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



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