CALL FOR GRANT APPLICATIONS
(AE2025-0232)

INESC TEC is now accepting grant applications to award 2 Research Initiation Grant (BII) 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 Initiation Grant (BII)

General scientific area: COMPUTER SCIENCE,ENGINEERING,MATHEMATICS

Scientific subarea: Applied mathematics,Electrical engineering,Informatics

Area of Work: Electrical Engineering - Energy management and operation

Grant duration: 11 months 28 days, starting on 2025-07-03.

Scientific advisor: Tiago André Soares

Workplace: INESC TEC, Porto, Portugal

Maintenance stipend: € 651.12, 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:

- Conduct a comprehensive literature review on self-consumption regulations and key studies related to the planning of energy communities, with a focus on the application of meta-heuristic optimization techniques;
- Enhance the existing tool's modules for sizing energy community assets by integrating advanced metaheuristic optimization methods;
- Develop a realistic and representative test case to support the testing and validation of the enhanced tool under practical scenarios.;
- Produce detailed technical documentation covering the methodology, implementation process, and results of all activities performed.

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

The optimization of energy community assets is crucial for enabling local decarbonization and enhancing system flexibility. These communities play a key role in supporting system operation by improving local energy balance and enabling demand-side flexibility. However, the asset sizing problem is computationally challenging, particularly when including binary decision variables and flexibility constraints. At INESC TEC, both conventional and metaheuristic approaches have been explored to solve this problem. While metaheuristic methods offer a promising alternative, their full potential has not yet been realized due to the complexity of parameter tuning and integration of flexibility provision. Additional testing and refinement are needed to assess their true performance and feasibility. The expected work in this context is outlined as follows:

- Review existing literature on metaheuristic optimization methods applied to energy systems, particularly in the context of energy community planning and asset sizing with flexibility constraints;
- Analyze the current implementation of metaheuristic approaches at INESC TEC and identify opportunities for parameter tuning and performance improvement;

4. REQUIRED PROFILE:

Admission requirements:

Electrical engineering, computer science, applied mathematics, computer science or similar
The awarding of the fellowship is dependent on the applicants' enrolment in study cycle or non-award courses of Higher Education Institutions.

Preference factors:

-Interest or basic experience in energy community models;
-Interest or experience in metaheuristics;
-Experience in scientific research activities;
-Programming experience in Python;

Minimum requirements:

- Basic knowledge of optimization;
- Basic knowledge of energy communities;
- Knowledge of the Python programming language;
- 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, 55%), Scientific Publications (PC, 10%), Experience (EX, 10%) and Motivation Letter (CM, 25%).
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: Tiago André Soares
Full member: José Villar
Full member: Filipe Joel 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. 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 not having benefited from any other research fellowship (Article 5, no. 5)
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 2025-05-29 to 2025-06-12

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

PRR Plano de Recuperação e Resiliência

REPÚBLICA PORTUGUESA

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