CALL FOR GRANT APPLICATIONS

(AE2026-0108)

INESC TEC is now accepting grant applications to award 1 Research Grant (BI) within the scope of the EMPEDOFLEX funded by National Funds through FCT - Portuguese Foundation for Science and Technology, I.P., project reference CETP/0007/2024.

1. GRANT DESCRIPTION

Type of grant: Research Grant (BI)

General scientific area: ENGINEERING

Scientific subarea: Electrical engineering

Area of Work: Artificial Intelligence and Data Analytics for Energy Systems

Grant duration: 12 months, starting on 2026-07-01, with the possibility of being renewed until the end of the project.

Scientific advisor: Tiago André Soares

Workplace: INESC TEC, Porto, Portugal

Maintenance stipend: € 1359.64, **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 analysis and valorisation of energy data and forecasting models in collaborative contexts.

- Contribute to the definition of technical and functional requirements for the integration of forecasting models into data sharing platforms (data marketplaces).

- Study and apply semantic interoperability methodologies in the energy domain, including the use of ontologies and semantic annotation mechanisms.

- Support the definition of methodologies for the evaluation, comparison, and performance traceability of forecasting models.

- Analyse incentive mechanisms, compensation models, and strategies for the economic valorisation of data and models.

- Investigate data governance approaches and privacy-preserving techniques applied to the sharing of energy-related information.

- Contribute to the specification of conceptual architectures for collaborative data platforms in the energy sector.

- Consolidate skills in programming, data analysis, and scientific communication.

- Contribute to the preparation of technical reports and scientific publications.

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

The increasing deployment of Positive Energy Districts (PEDs), characterised by local renewable energy generation exceeding annual consumption, reinforces the need for advanced solutions for the management, sharing, and valorisation of energy data. In such contexts, the coordination of multiple stakeholders, distributed resources, and digital services requires efficient mechanisms for integrating data and models, particularly in relation to energy forecasting. The heterogeneity of data sources, formats, and forecasting horizons, together with challenges related to interoperability, privacy, and business models, pose significant barriers to the development of collaborative data sharing platforms (data marketplaces).

In this context, the present work plan aims to analyse and structure the design of a collaborative data marketplace to support the sharing and economic valorisation of energy data and forecasting models, in alignment with the project objectives. The fellow will contribute to the definition of technical and functional requirements, as well as to the study of semantic interoperability approaches, model evaluation mechanisms, and data governance and privacy strategies.

The main activities include:

- Review of the state of the art in data marketplaces and data/model sharing in the energy sector.

- Analysis of technical and functional requirements for integrating data and forecasting models into collaborative platforms.

- Study and application of semantic interoperability methodologies, including ontologies and semantic mapping approaches.

- Definition of approaches for the evaluation, comparison, and performance traceability of forecasting models.

- Analysis of incentive mechanisms, compensation models, and strategies for the economic valorisation of data and models.

- Study of data governance strategies and privacy-preserving techniques.

- Contribution to the specification of conceptual architectures for data marketplaces in the energy sector.

- Preparation of technical reports, scientific publications, 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:

- Demonstrated experience in energy data analysis and modelling, preferably in collaborative or multi-stakeholder environments;

- Strong background in time series forecasting applied to energy systems (e.g., renewable generation, demand, consumption);

- Proven knowledge of machine learning and/or deep learning techniques for predictive modelling;

- Experience with data platforms, data architectures, or data marketplace concepts;

- Solid understanding of semantic interoperability, ontologies, and data modelling approaches;

- Advanced programming skills in Python, including experience with libraries such as Pandas, NumPy, Scikit-learn, and/or PyTorch/TensorFlow;

- Experience in developing reproducible data pipelines and handling heterogeneous datasets;

- Knowledge of energy systems, including renewable integration and distributed energy resources;

- Familiarity with data governance frameworks, privacy-preserving techniques, or secure data sharing mechanisms;

- Proven ability to conduct independent research, critically analyse scientific literature, and contribute to scientific publications;

- Strong communication skills, both written and oral, in an academic or research environment;

Minimum requirements:
- Basic knowledge of data analysis and time-series analysis;
- Programming skills in Python;
- Fundamental understanding of machine learning;
- Basic knowledge of energy systems;
- 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: Carla Silva Gonçalves

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 2026-05-07 to 2026-05-21

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