

Call for the selection of no. 1 research contracts

The University of Pisa announces public selection procedures for the award of no. 1 research contract in accordance with Article 22 of Law 240/2010 as set out in Annex A) to this call, in which the information sheets indicating the reference structure, the description of the research project, the specific responsibility within the project and the functions to be performed, as well as the scientific disciplinary area and information on the interview, are provided.

Deadline for submitting the application: 10th July 2026 at 1.00 p.m.

Contract duration: 24 months

All-inclusive annual administrative gross amount: € 54.910,09

Admission requirements:

- A PhD or medical specialisation degree.

Students enrolled in the third year of a PhD programme or in the final year of a postgraduate medical specialisation programme are also eligible to apply, provided they obtain their degree within six months from the publication date of the selection notice. Failure to meet this requirement candidates will lose the right to be awarded the research contract.

Documents to be attached:

The application must include:

- a) A research development project related to the research project specified for the selection in Annex A);
- b) A comprehensive scientific-professional curriculum containing all the necessary elements for assessing prior research activities and any relevant work experiences, in connection with the content of the research project under consideration (specifically indicating: date/duration, place of completion, etc.);
- c) For individuals with a foreign doctoral degree, an equivalence decree or determination; if the candidate already holds one, a copy of the foreign doctoral degree or a suitable certification issued by the foreign institution, confirming the components, duration, and activities of the doctoral programme undertaken to achieve the doctoral degree;
- d) Additional documents that the candidate deems useful for the selection purposes;
- e) Publications that the candidate considers relevant for the selection, considering the maximum number set for the selection, as indicated in Annex A), with a list signed by the candidate;
- f) Photocopies of the tax code and a current valid identification document.

Candidates must submit the publications they intend to present exclusively in PDF format through the dedicated section of the online procedure.

Each publication shall not exceed 30 megabytes.

Publications not enclosed with the application will not be considered by the Selection Board. Lists with links to texts are not allowed as a replacement for publications.

Applications

Applications must be submitted online only, using the following link: <https://pica.cineca.it/unipi/>

or shall be invalid. An e-mail inbox is required to login and complete the application.

Candidates can login into PICA platform using the digital identifier SPID (Sistema Pubblico d'Identità Digitale - Public Digital Identity System) or Carta d'Identità Elettronica (CIE), selecting the University of Pisa among the available Institutions.

If candidates have no SPID, they can request it according to the procedures set forth on the website www.spid.gov.it or www.cartaidentita.interno.gov.it.

Candidates can also login with the credentials issued directly by PICA platform (please note: in order to apply online, the system requires an e-mail inbox for self-registration), with their LOGINMIUR, REPRISE or REFEREES account.

Applicants should provide all the required data and upload all documents in PDF format.

The system allows saving an application draft within the application deadline, recording the online application's date and sending a receipt with an automatic reply. After the deadline, the system will not allow login nor application submission.

Each application will be assigned a unique identification number to be referred to in all subsequent communications, along with the selection code provided by the application form.

Under penalty of exclusion, the application shall be valid only if including all the required data, the copy of a valid ID and:

- if submitted without accessing with digital identifier SPID/CIE, the applicant's signature is compulsorily required;
- If submitted by accessing with digital identifier SPID/CIE, the application will be automatically processed by the system and the applicant's signature is not required.

Applicants undertake to promptly communicate in writing any variations of what declared in the application form.

The communication shall be edited in PDF format, signed and forwarded to the Rector of the University of Pisa by the Italian certified e-mail system address (P.E.C. Posta Elettronica Certificata): protocollo@pec.unipi.it or emailed to concorsi_contratti@unipi.it , within the application's submission deadline.

An applicant's valid identification document shall be annexed.

For further information on application submission, please refer to concorsi_contratti@unipi.it.

For technical problems support only, please click on the bottom link available at <https://pica.cineca.it/unipi>.

Selection procedure:

For the selection under Annex A) the Director of the Department appoints a Selection Board consisting of the head of the research project and two other members.

Candidates are assessed comparatively on the basis of the following elements:

- a) Quality, originality and innovativeness of the research development project, with reference to the research project under consideration;
- b) Relevance and significance of the research activities previously carried out, as well as any work experience, in relation to the contents of the research project subject to the selection, in addition to documented qualifications (such as, for example, grade point average, postgraduate diplomas, any contracts, scholarships, conference presentations, and other documented qualifications);
- c) Quality, originality and innovativeness of the attached publications, as well as their relevance to the research project under consideration;
- d) An interview aimed at assessing the knowledge of the basic subjects of the scientific disciplinary sector to which the subject of the research project belongs, the suitability for carrying out the research activity under the contract and for the implementation of the research project, as well as the evaluation of knowledge of the English language and/or other languages relevant to the research (as reported in the

Annex A). During the interview, the Selection Board also assesses the knowledge of the Italian language for foreign candidates.

The Selection Board has 100 points available for the comparative evaluation of the candidates: 60 points can be allocated for the criteria mentioned above under a), b) and c), and 40 points for the interview.

The Selection Board may stipulate a minimum score below which eligibility cannot be awarded.

Candidates are summoned for the interview on the day and time specified in the Annex A) for the procedure.

Failure to attend an interview by a candidate is considered an explicit indication of their intention to withdraw from the selection process.

Applicants for this selection are required to consult the University website at <https://bandi.unipi.it/public/Bandi?type=COR> (on the selection procedure page) during the two days preceding the date set for the interview.

On the University website (<https://bandi.unipi.it/public/Bandi?type=COR>), in the section dedicated to the procedure, the following will be published:

- **Assessment scores for criteria a), b) and c);**
- **The list of candidates admitted to the interview;**
- **Practical instructions for carrying out the interview and/or any details should the interview be rescheduled;**
- **The procedure approval decree and the merit ranking that takes into account the scores achieved by the candidates.**

The prospective doctoral or postgraduate student may only enter into a contract after obtaining a doctoral or postgraduate medical degree. In the event that the PhD candidate or postgraduate student fails to obtain the degree within six months from the publication date of the selection notice, they will lose the right to be awarded the research contract.

Please note that the English version is given as a matter of courtesy, for the only purpose of information. It cannot be legally used in the event of a dispute or a claim arising from the interpretation of this translation and concerning the contents, a possible uncertainty, contradiction, or discrepancy. Should this occur, the Italian version of the call should prevail as the only valid. For full Italian text see: <https://bandi.unipi.it/public/Bandi?type=COR> (on the selection procedure page).

Department of Energy, Systems, Territory and Construction Engineering

GSD 09/IIND-08 Electrical Energy Engineering

SSD IIND-08/B Electrical Power Systems

Project FLEXV2X

CUP: F53C25002120001

Head of the Research Project

Prof. Giovanni Lutzemberger

Research Project:

FLEXV2X: Smart Vehicle-to-Everything Integration for Power System Flexibility and Advanced Energy Management

The FLEXV2X project aims to develop, integrate, and validate an advanced bidirectional charging infrastructure that transforms electric vehicles from simple grid users into intelligent, interoperable, and programmable energy resources. Through a systemic and strongly integrated vision, the project seeks to bridge the technological gaps that have emerged in the most recent national and international projects, proposing a digital and hardware ecosystem capable of concretely enabling dynamic interaction between Electric Vehicles (EVs), renewable sources, and smart electricity grids. The technological objectives are structured around three main pillars.

- **Predictive EMS and HW/SW Interoperability:** Advanced EMS (Energy Management System) systems will be developed with predictive algorithms based on Artificial Intelligence (AI) and adaptive control logic. These systems will be capable of orchestrating energy flows in real time between EVs, renewable installations (photovoltaic and wind), stationary storage, and the grid, ensuring full compatibility with the latest interoperability standards, such as ISO 15118-20, OCPP 2.0.1, and IEEE 2030.5.
- **Predictive Capability and Energy Optimization:** Forecasting models will be developed for vehicle availability (based on real booking and fleet rotation data), for renewable energy production (wind and photovoltaic), and for local demand. These models will feed EMS strategies to optimize charging/discharging times, reduce load peaks, minimize energy costs, and maximize the value of energy through dynamic or simulated tariff logic. The AI suite will include modules for forecasting State of Charge (SoC), photovoltaic (PV) production, load, and fleet usage behavior.
- **Multi-site Validation and Operational Replicability:** Three real-world demonstrators will enable testing under operational conditions. These include an experimental site in Vado Ligure connected to a 10 MW wind plant (for V2G, V2B, and V2V testing), an operational car-sharing fleet site in Bologna (TPER) with over 300 V2G-ready vehicles (for V1G optimization and monetization simulation), and a satellite site in Ferrara (TPER) to test user experience and the replicability of fleet management models.

These activities aim to advance the technology from TRL 4 to TRL 7, with demonstration in real operational environments and full integration of software systems, EMS, and bidirectional charging stations. The project stands out for its application-oriented dimension, which includes innovative monetization logic (dynamic tariffs, incentives, value sharing), mobile apps with advanced HMI modules, and a scalable modular structure suited to urban hubs, industrial areas, or corporate fleets. FLEXV2X aims to overcome current limitations related to poor interoperability, static forecasting, and poorly integrated EMS logic, offering a scalable, replicable technology platform compliant with regulatory developments, geared toward the integration of EVs into energy markets, energy communities, and new dynamic smart-charging models.

Specific responsibilities within the project and functions to be performed:

The specific responsibility concerns the execution of operational and coordination activities within WP2 of the Project, in particular regarding the “definition of deliverable services and the development of models and simulations of smart charging hubs, including V1G and V2X logic”, activity line 2.1.

The activity involves classifying the deliverable services into two distinct levels:

- Level 1 (primary). The functions defined with reference to level 1 require, for their implementation, only local measures, i.e. measures that can be carried out by the EVSE, on the vehicle side or on the grid side.
- Level 2 (secondary). This level involves functions that, in order to be implemented, require, in addition to local measures, an exchange of signals with a centralized regulator. It allows EVSEs to operate in a coordinated manner with one another in order to pursue general objectives, whether grid-related or even national in scope. Example: secondary frequency regulation.

Level 2 refers to functions that could be added in the medium-term future (for example, between 2030 and 2040), when the penetration rate of electric vehicles will have increased significantly compared to today. The demonstrators developed in this project will instead predominantly implement level 1 functions.

In order to evaluate the effectiveness and the methods of delivery of all the services described, it will be important to have detailed simulation systems available, capable of carrying out both general-type simulations of services that are theoretically possible and implementable in the future, and digital replicas of the operation of the project’s demonstrators, in order to evaluate off-line the effects of actions or control logic. It is important that the simulators be equation-based, with models described through their equations, and that they allow continuous-time/discrete-time simulations, so that the system of equations under consideration can change when an event occurs, for example during the charging of a vehicle. The models developed will ultimately make use of underlying open-source libraries, so that they themselves can be made public and replicable by anyone, for maximum transparency and reusability of the results.

The functions to be carried out will therefore be those related to the analysis of the state of the art and the description of the deliverable services at level 1 and level 2, as well as the development of suitable simulation models in open-source language. Finally, there will be a component related to experimental activities, both at the Department of Energy, Systems, Territory and Construction Engineering, and at the sites where the project’s demonstrators will be installed.

Maximum number of publications that candidates may submit, including the doctoral thesis, if submitted: 8

Language skills:

English language

Date, time and mode of the interview:

24th July 2026 at 10:00 am in presence at the Department of Energy, Systems, Territory and Construction Engineering - Meeting Room - Largo Lucio Lazzarino - Pisa