

IMDEA ENERGY FOUNDATION

PROGRAM OF ACTIVITIES 2026

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1. INTRODUCTION

IMDEA Energy Foundation was created in November 2006 by the Community of Madrid to promote R&D&I activities related to energy. The Foundation's ultimate goal is to obtain and transfer high-level scientific and technological results that contribute to the development of a sustainable energy system, establishing strong links with leading companies in the energy sector. The R&D&I activities carried out at IMDEA Energy, outlined in its Scientific Program, fall within the fields of renewable energy and clean energy technologies.

Since its inception, the Institute has steadily grown its human resources, reaching approximately 150 people, a number well-suited to the space and infrastructure available at the Foundation's headquarters. Simultaneously, scientific output and participation in research projects have been consolidated. The quality of the research conducted has been favorably evaluated by the Institute's Scientific Council every four years. Furthermore, the Institute received significant recognition for its achievements by obtaining, between 2020 and 2024, the prestigious accreditation as a "María de Maeztu" (MdM) Research Unit, awarded by the Ministry of Science and Innovation.

In 2025, research objectives were prioritized based on the main recommendations of the Scientific Council, as well as the decarbonization challenges to be met by 2030 and the goal of achieving a carbon-neutral economy by 2050, in accordance with the European Green Deal. These priorities also include enhancing and accelerating the development of technological solutions for energy security, as promoted by the REPowerEU initiative to reduce energy dependence on Russian gas.

In 2026, the Institute will continue working to consolidate the excellence of its research program, awaiting the results of the evaluation of its application for accreditation as a Severo Ochoa Center of Excellence for the period 2026-2029. It also plans to strengthen alliances and collaborations with prestigious international groups, as well as increase IMDEA Energy's external visibility through events, social media, and other communication channels. Furthermore, over the next three years, a strategic plan on Artificial Intelligence (AI) will be implemented, providing a clear roadmap for integrating AI solutions into the Institute's core activities, thereby increasing efficiency, scientific productivity, and collaboration with industry and academia.

Other aspects of relevance for the coming year will be the Institute's participation in initiatives to boost activity associated with the programs of the Net-Zero Industry Act. In particular, the Institute will open lines of research in projects related to nuclear energy given the importance that this law gives to the European manufacture of nuclear technologies and in response to the new strategy of the Community of Madrid to increase research on nuclear energy.

2. CURRENT SITUATION

2.1. Organizational structure

Figure 1 summarizes the organization and functional structure of IMDEA Energy at the present time.

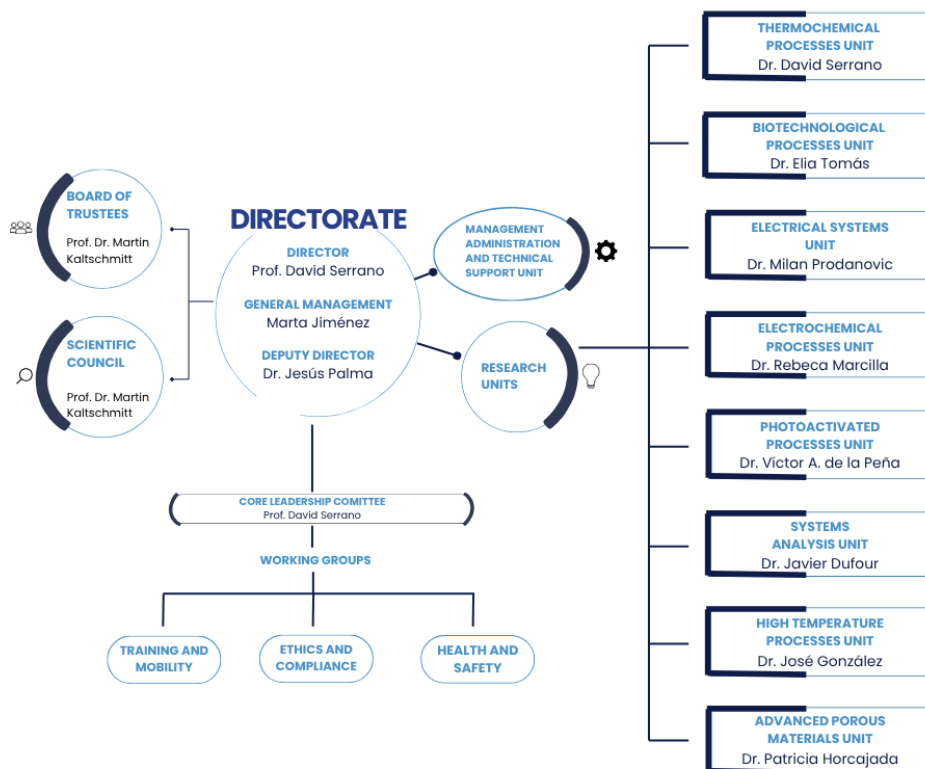


Figure 1. Organizational structure of the IMDEA Energy Institute.

The **Board of Trustees** is responsible for the governance, representation, and administration of the Foundation, ensuring the fulfillment of the institution's objectives. The Board has a Standing Committee to expedite decisions related to the day-to-day operation of the Institute. Currently, the Board of Trustees comprises 21 members: 1 President, 7 ex officio members of whom 5 are affiliated with the Community of Madrid, and 2 represent other IMDEA Institutes (Water and Materials), 4 internationally renowned scientific trustees, 4 trustees representing universities and public research institutions in Madrid, 2 expert trustees, and 3 trustees representing companies in the energy sector. The Board of Trustees held a meeting on June 3, 2025, at which the annual report and financial statements for the 2024 fiscal year were approved.

The **Scientific Council** is responsible for advising the Institute's Director on the development of the scientific program and for establishing the objectives to be achieved over four-year periods. It is composed of the scientific members of the Board of Trustees and an additional number of scientists specializing in various energy-related fields. Currently, it has a total of 11 members. Furthermore, the Scientific Council is responsible for evaluating the results achieved and the activities carried out by the Institute in accordance with the objectives set for each year and for the four-year period. The Scientific Council met on June 2 and 3, 2025 to assess the progress and results achieved in 2024 and to present a progress report for 2025.

The **Management Committee** is composed of the Director, the Deputy Director, and the Manager. It is responsible for managing and processing all matters related to the scientific activities and administration of IMDEA Energy, as well as implementing the decisions made by the Board of Trustees and the Delegated Committee.

The Institute currently has eight **Research Units** defined according to their specialization: Thermochemical Processes, High Temperature Processes, Electrochemical Processes, Biotechnological Processes, Electrical Systems, Systems Analysis, Photoactivated Processes and Advanced Porous Materials.

Likewise, the **Administration and Management Unit** is responsible for economic, financial and human resources management, as well as the management of R&D&I projects, relations with companies and development of technology transfer actions, communication and scientific dissemination activities, in addition to the management of the building's infrastructure and facilities and the central research laboratories.

For the management and supervision of organizational activities, there are a total of four committees/working groups in which representatives from the different categories and areas of activity of the Institute participate:

- Leadership Committee. Its functions are to comment on and discuss the main issues related to the functioning and operation of the Institute. It is composed of the members of the Management team, the heads of the eight Research Units, senior researchers, and the staff responsible for the different administrative and management areas.
- Training and Mobility Working Group. It oversees the training plan (technical and transversal), the mentoring program, the organization of the annual workshops for young and senior researchers, respectively, and the stays of IMDEA Energy researchers in other research centers.
- Compliance Working Group. Resolves conflicts, channels complaints and claims, and establishes a code of ethics and a manual of best practices.
- Health and Safety Working Group. It is responsible for the health and safety plan, the emergency plan, and oversees the protection systems.

2.2. Research lines

During the year 2025, IMDEA Energy's R&D&I activities have focused on seven main thematic areas already consolidated in the Institute's work program:

- Production of sustainable fuels (advanced biofuels, solar fuels, hydrogen and fuels from waste).
- CO₂ valorization routes for its conversion into high-demand products in the market.
- Solar energy systems and technologies, with special emphasis on concentrated solar thermal energy for the production of electricity and industrial process heat.
- Thermal, electrochemical and chemical energy storage to increase the dispatchability and penetration of renewable energies and distributed electricity generation.
- Smart management of electricity demand and improvement of the flexibility and stability of future electricity grids.
- Development of technologies and strategies for efficient end-use of energy in buildings, industrial processes and environmental applications.
- Conducting studies to assess the sustainability of new energy technologies and related systems, as well as modeling scenarios for energy planning.

The strategic framework that guides R&D priorities at IMDEA Energy lies in the objectives established in energy plans and research programs at the regional, national and international levels, such as the UN Sustainable Development Goals; the Green Deal for Europe; the European Partnership for the Clean Energy Transition (CET Partnership); the European Strategic Plan for Energy Technologies or "SET Plan" and its objectives for the years 2030 and 2050; the European research and innovation program Horizon Europe 2021-2027; the Integrated National Energy and Climate Plan; the Spanish Strategy for Science, Technology and Innovation; the Regional Plan for Scientific Research and Technological Innovation; the Technological Roadmaps prepared by recognized national and international institutions and associations; and the Implementation Agreements of the International Energy Agency.

2.3. Building and infrastructures

The IMDEA Energy Foundation develops its activities in a building with approximately 8,000 m² of floor space, located on a 10,000 m² plot in Móstoles Technology Park. The building houses nine laboratories, two pilot buildings, common areas and offices, as well as an auditorium with a capacity of 130 people. It also features a self-consumption photovoltaic power generation system located in two different areas of the building: the parking canopies with a nominal power of 130 kWh, and the building's roof, with a nominal power of 30 kWh, as well as ten electric vehicle charging points.

Additionally, there is an adjacent plot of approximately 5,320 m² granted by the Móstoles City Council, to host research activities in concentrated solar power, hydrogen production, and battery testing. This plot currently houses a unique 250 kW experimental solar installation, consisting of a field of 169 heliostats and a tower capable of accommodating several receivers on two test platforms. During 2025, the SUN-to-LIQUID II project funded the renovation of the solar field tower, improving its accessibility and increasing its testing capacity. New facilities for testing electrolyzers and batteries were also incorporated within the framework of the GreenH2-CM project.

The following unique scientific equipment is located in the pilot plants, laboratories, roof and basement of the building:

- A laboratory for testing materials and components for photothermal applications (primarily concentrated solar power) is dedicated to their chemical, thermomechanical, and fluid dynamic characterization under high temperatures and/or high light flux densities. The laboratory incorporates a vertical furnace with three independent heating zones (up to 1500 °C) and the Kiran-42 high-flux solar simulator with an electrical power of 42 kWe , enabling concentrations in its focal zone exceeding 3,500 suns (3,500 kW/m²) and a thermal power of 12 kW. The 250 kW solar tower allows for the reproduction of operating conditions in scale-up processes.
- Electrochemical devices testing laboratory that allows the programming of different patterns and cycles of charge and discharge of the devices with which it is possible to study the performance, cyclability, aging and failure modes of batteries and supercapacitors, as well as control and monitor the evolution of the reactions of electro-separation, electro-synthesis and electro-degradation of species dissolved in water.
- A testing laboratory for photocatalysis, photothermocatalysis, and photoelectrocatalysis is equipped with laboratory-scale reactors for solar fuel generation processes, such as hydrogen production from water, CO₂ photoreduction , and ammonia production, as well as oxidation products. In each case, the reaction systems include instruments for product detection, including FID chromatography, HPLC chromatography, mass spectrometry, and ion chromatography.
- Smart grid laboratory for real-time simulation of electrical system operation using Power Hardware-In-the-Loop (PHIL) technology. This includes the integration of renewable energy and storage, power line impedances, DC and AC distribution panels, active and reactive power loads, and a motor bank. An OPAL-RT HIL (Hardware-In-the-Loop) system is available for real - time electrical grid simulation. Its objective is to improve the management and control of energy resources, as well as system stability and balance.
- Advanced fuel and other product production plant from organic waste (biomass, plastics, etc.), including equipment for waste treatment by grinding and drying, pyrolysis reactors at different scales and configurations, autoclave reactors and biochar and hydrochar activation furnace (intermediate scale).
- A microalgae cultivation facility using photobioreactors, enabling the scaling up of microalgae and cyanobacteria production. This pilot plant also features several anaerobic bioreactors and a versatile 50L reactor that allows for the scaling up of both anaerobic and aerobic processes with mixed or pure cultures.
- Surface analysis laboratory under reaction conditions that includes an X-ray photoelectron spectroscopy analyzer (XPS) that allows testing under conditions close to those of operation (temperature, pressure, gases, vapors etc.), analyzing a large number of materials and processes.
- Solar fuel production plant, consisting of a reactor and a compound parabolic concentrator (CPC) coupled to a gas chromatograph.

- Time-resolved optoelectronic characterization laboratory. The laboratory consists of various spectrometers that allow for time-resolved photophysical studies such as fluorescence and absorption measurements of transient species.
- Robotic laboratory for synthesis and characterization of materials (Brain-Lab). This automated platform enables the accelerated discovery of materials for different energy applications.

IMDEA Energy's central laboratories have various characterization and analysis techniques to serve researchers:

- X-ray diffraction: three diffractometers are available.
- Microscopy: highlights include the field emission scanning electron microscope (FEG-SEM) and a 120 kV transmission electron microscope (TEM).
- Spectroscopic techniques: covering the UV-IR spectrum. In addition, a Raman spectrometer is available.
- Elemental analysis: using ICP-OES and elemental analyzer of C, H, O, N, S.
- Thermal analysis: using two thermobalances up to 1450°C.
- Textural properties: using two conventional gas adsorption-desorption analyzers and a chemisorption apparatus.

During the year 2025, the following additions to the equipment of the IMDEA Energy Research Units should be noted:

- The Thermochemical Processes Unit has acquired a RETSCH EMAX high-energy ball mill; which has two grinding stations with speeds between 300 and 2,000 rpm and temperature controlled by a water cooling system; an installation for continuous catalytic reactions in a fixed bed at pressures up to 40 bar and an autoclave reactor with a variable speed magnetic stirring motor, maximum pressure of 345 bar and maximum temperature of 500 °C.- The Thermochemical Processes Unit has carried out an upgrade/expansion of the electrical and gas installations, along with the addition of new protection systems in the pilot plant facilities, aimed at strengthening operational safety .
- The High-Temperature Process Unit has expanded its hydrogen capabilities with the acquisition of a second 10 kW solid oxide electrolyzer and a Setaram thermogravimetric and differential scanning calorimetry analyzer up to 1600 °C , capable of operating in hydrogen atmospheres (maximum concentration of 100%), synthetic air or inert gas, steam (concentration of at least 15%), and vacuum (below 0.01 mbar). It has also strengthened its additive manufacturing area for ceramic materials with a second DeltaTower ST 3D printer, isolated from the environment by a closed enclosure, and a Remet automatic micro-cutter . micromet and a Büelher manual polisher-grinder EcoMet 30. Finally, the maintenance of the tower has been completed by replacing the heat shield and installing a chiller unit for heat rejection in 100 kW solar receivers and reactors.
- The Electrochemical Processes Unit has strengthened its component preparation capabilities with a new precision analytical balance and a planetary centrifugal mixer. It has also enhanced its resources for testing battery cells and modules by acquiring a flow cell and a UV/Vis spectrophotometer for online measurements, three peristaltic pumps, four compact (20L) climate chambers, an 8-channel high-current cycler ($\pm 5V$, $\pm 200A$).
- Photoactivated Processes Unit has acquired an HPLC chromatograph for the detection of oxidation products. A Scanning Droplet Cell has also been acquired, an electrochemical technique in which small drops of electrolyte are deposited along a conductive or semiconducting surface to map its local electrochemical properties.
- The Biotechnology Processes Unit has opened a new laboratory in the basement. The laboratory has been equipped with various anaerobic reactors and all the necessary furniture and infrastructure for carrying out experimental work. In addition, the unit has acquired two packed column glass biomethanation reactors, a benchtop rotary evaporator, and a vacuum oven.
- The Electrical Systems Unit has integrated the flow battery acquired last year and the direct current power supply (PV and battery emulator) into the control and power infrastructure of the SEIL laboratory, enabling real-time simulation of hybrid renewable plants in different scenarios.

- The central laboratories of IMDEA Energy have acquired an inductively coupled plasma optical emission spectrometer (ICP-OES), a far-field infrared spectrometer (FT-IR), and a horizontal thermobalance to replace the existing, obsolete equipment. In addition, a differential scanning calorimetry (DSC) system has been acquired to determine the amount of heat absorbed or released by samples during controlled heating or cooling.

2.4. Human Resources

It is estimated that by the end of 2025, IMDEA Energy's workforce will consist of 158 employees: 117 researchers, 19 technicians, and 22 administrative and management staff. 49% of the Institute's researchers hold doctoral degrees. Table 1 shows the number of employees as of December 31, 2024, and the projected number as of December 31, 2025, along with the corresponding gender data.

Table 1. Number of workers as of 31/12 of the years 2024 and 2025 and gender data.

	Total number of workers 31/12/2024	HIRES 2025	LEAVES 2025	Total number of workers 31/12/2025 (provisional data)
	150	34	26	158
GENDER DATA 31/12/2024 (provisional data)				
	% Men	Number Men	% Women	Number Women
Researchers	57.26%	67	42.74%	50
Technicians	73.68%	14	26.32%	5
Management	22.73%	5	77.27%	17
TOTAL	54.43%	86	45.57%	72

In the year 2025 there have been a total of 29 active personnel grants with a total planned expenditure of € 806,032. This data is provisional given that the year 2025 It is not yet finalized. Figure 2 shows the estimated distribution of the grants according to the source of funds.

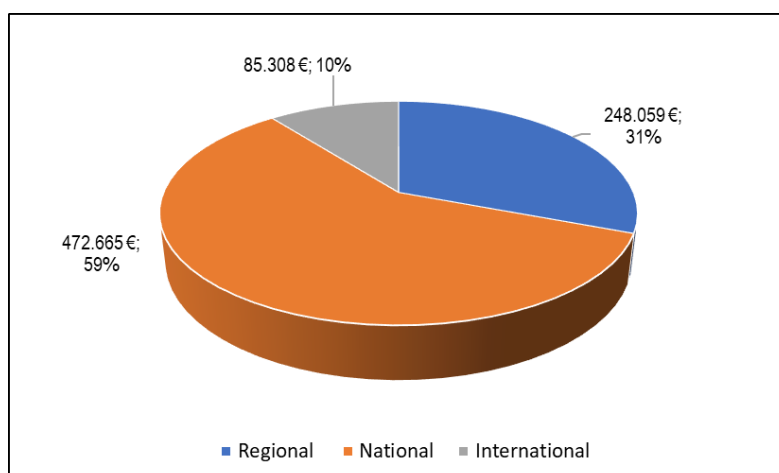


Figure 2. Distribution of personnel grants according to the origin of funds in the year 2025 (provisional data).

Figure 3 shows the estimated distribution of personnel aid implemented in 2025 according to the type of call.

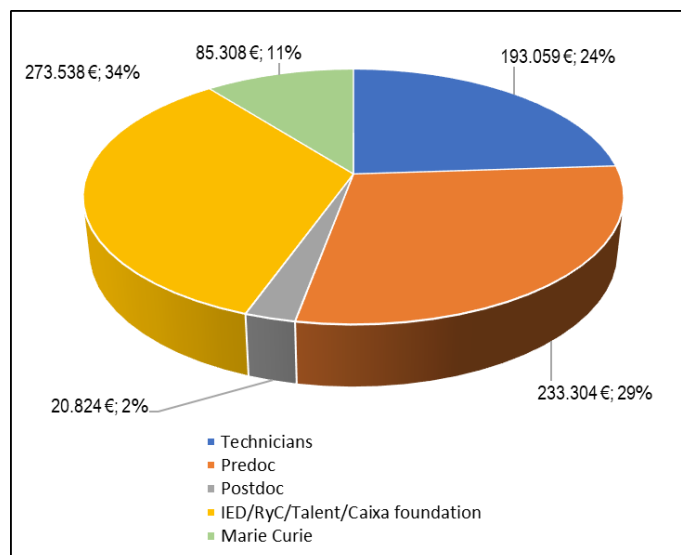


Figure 3. Distribution of personnel grants in the year 2025 according to the type of call (provisional data).

Furthermore, during 2025, 43 students from different Spanish and international universities participated and collaborated with the IMDEA Energy Institute, completing their undergraduate and master's theses and internships. Regarding research staff mobility, in 2025, 14 IMDEA Energy researchers undertook research stays at foreign research centers, and 28 external researchers conducted research stays at IMDEA Energy.

During 2025, the Institute continued to develop the activities planned within the framework of the European HRS4R - Human Resources Seal Strategy for Researchers, whose objective is to align the procedures for hiring, training and career development of the center's researchers with the Code of Conduct and the European Chart for Researchers.

2.5. Scientific Results

In 2025, the total number of indexed scientific publications recorded to date is 82. 97,3 % of these publications were in journals ranked in the first quartile, and 61,6% in the first decile. This data comes from the Scopus and Scival databases and clearly shows the high quality of IMDEA Energy's scientific publications.

Up to now, 112 communications have been made at congresses (oral and poster), 18 invited lectures and 1 book chapter has been published.

Finally, during 2025, one European patent and one Spanish patent were granted, and three European patent applications were filed. In addition, one patent was licensed to a Spanish company. Furthermore, 39 doctoral theses were in progress, and to date, 8 doctoral theses by predoctoral researchers at IMDEA Energy have been defended. In addition, 39 doctoral theses have been underway, and to date, 9 doctoral theses by predoctoral researchers at IMDEA Energy have been defended.

2.6. Research projects, technology transfer and internationalization

The total number of active R&D projects and R&D contracts with companies and institutions in 2025 to date is 106, distributed as follows: 7 regional projects, 36 national projects, 8 industrial projects, 31 international projects, and 24 contracts with companies and institutions. In 2025, external funding for R&D projects and contracts with companies is estimated at approximately €7.55 million (this figure is provisional as the 2025 fiscal year is not yet finalized). This external funding, along with grants for hiring research staff and the earmarked subsidy received from the Regional Ministry of Education, Science and Universities of the Community of Madrid, allows IMDEA Energy's activities to be financed.

Figure 4 shows the distribution of estimated executed financing for projects and contracts in 2025 according to the origin of the funds.

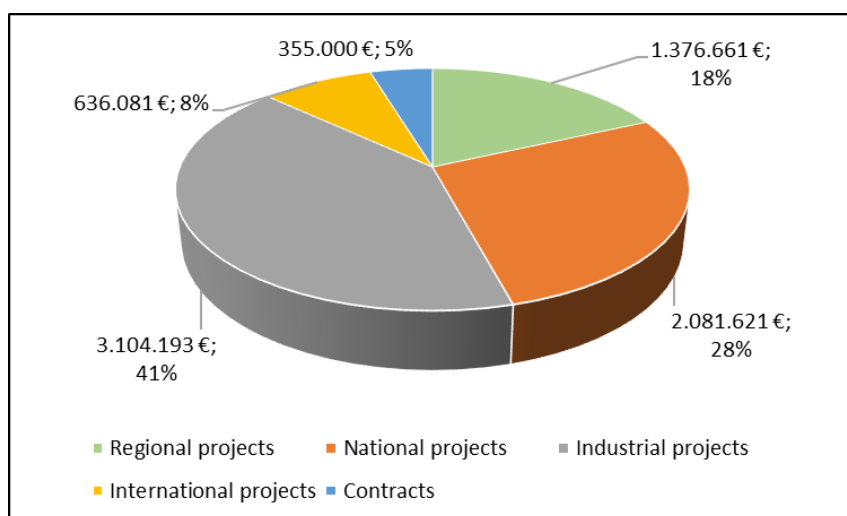


Figure 4. Distribution of IMDEA Energy's external funding in 2025 from R&D projects and contracts according to the origin of the funds (provisional data)

In 2025, the actions planned in the Technology Transfer Plan were carried out, maintaining a focus on close relationships with companies and selective attendance at business matchmaking events, gatherings, and meetings. Participation took place in the Technology Transfer working groups of the IMDEA Institutes network and the SOMMa network of Severo Ochoa and Maria de Maeztu centers, as well as in the local entrepreneurship projects Móstoles Impact. Entrepreneurship Booster (Mieb), editions I and II.

Seven industry events have been organized on "Green Hydrogen: Integration of Generation, Consumption, and Ecodesign," "Digitalization and Artificial Intelligence in Solar Thermal Technologies," "Sustainable Aviation Fuels: Driving an Innovation Hub ," and "Storage and Conversion for Manageable Renewable Energy," within the framework of the Genera Trade Fair; and "Energy and Artificial Intelligence," "Grid Connection of Renewable Plants with Storage: Challenges and Solutions," and "Boosting Grid Stability with PV and BESS: Addressing Security Challenges." The 32nd edition of the "Annual Seminar on Automation, Industrial Electronics, and Instrumentation, SAAEI 2025" was co-organized with URJC . The internal workshop "Protection and Transfer of Research Results" was also held. An event on the GreenH2-CM project and another on electrical grid modeling are being organized for December.

The technology catalog, which was presented at Tech Business PlaNET25, Science, has been updated. for Industry S4i; Transfer Forum, Why H2 Sustainable Congress , International Defense and Security Fair FEINDEF 2025, South Summit 2025, IP Perspectives XI, Green Gas Mobility Summit, Smart Energy Congress SEC2025, Future Utility and Madrid Connect 2025.

At the international level, various activities aimed at fostering scientific collaborations with renowned research centers continued throughout 2025. Within the framework of the visiting researchers program, IMDEA Energy hosted nine distinguished researchers, with particular emphasis on strengthening ties with institutions in third countries, including the United States (University) . of Cincinnati), Japan (Waseda University), South Korea (Jeonbuk National University and Korea University of Science and Technology) and China (Beijing University of Chemical Technology).

Throughout 2025, efforts have focused on consolidating the Institute's leadership and international visibility by securing competitive funding and actively participating in international projects. It is estimated that more than 20 proposals will be submitted to international calls for proposals, including 10 MSCA proposals in various categories (DN, PF, SE, and Citizens) and 4 coordinated proposals. To date, five international projects have been approved, two of which are coordinated projects and one of which is an ERC Proof grant. of Concept). It is also worth highlighting the upcoming start of IMDEA Energía's participation, through a coordinated project, in the European Partnership Water4All, aimed at guaranteeing the water supply.

Furthermore, active participation in 31 international projects has helped to strengthen collaborations with world-renowned research groups, while the coordination of six projects has allowed IMDEA Energy to consolidate its position as a leading partner in various thematic areas.

During 2025, IMDEA Energy also played a prominent role in organizing and participating in international scientific events, including the Workshop on “Evaluation of the outstanding issues of eGHOST and SH2E (projects coordinated by IMDEA Energy) for the SSbD guidelines ” (January 22, Brussels) within the framework of the European project GUESS- Why , the scientific Workshop on “Biochemical conversion of biogenic waste into jet fuel” (October 6, Hamburg) within the framework of the coordinated European project BIOCTANE and the Workshop “Setting the rules for the environmental footprint of hydrogen” within the framework of the coordinated European project HyPEF .

Furthermore, ten researchers from the IMDEA Energy Institute have been recognized among the 2% most influential scientists in the world in the 2025 ranking, according to the prestigious World's Top 2% Scientists ranking , prepared by Stanford University and the academic publisher Elsevier.

2.7. Communication and science outreach activities

The Institute has maintained sustained growth in its communication and dissemination channels, consolidating its digital presence and reinforcing the dissemination of its scientific and technological activities.

Social networks

As of October 2025, the institutional accounts on social networks have accumulated a total of 14,155 followers, which represents an increase of 20.5% compared to the previous year.

The greatest growth has been recorded on LinkedIn , which has gone from 8,134 followers in 2024 to 10,800 in 2025, reflecting a 32.8% increase and consolidating its position as the Institute's main professional communication channel. Since January, 120 updates have been published.

On Instagram, the community has grown from 1,044 to 1,186 followers, an increase of 13.6%, and 95,735 views have been recorded from January to the end of October 2025, and 67 new posts have been published.

X account has reached 2,115 followers, compared to 2,067 the previous year. In 2025, 80 posts were published, generating 21,200 impressions, 1,500 interactions, 282 likes, and 78 reposts . Meanwhile, their Facebook page has 52 followers.

Figure 5 shows the evolution of the Institute's social media followers:

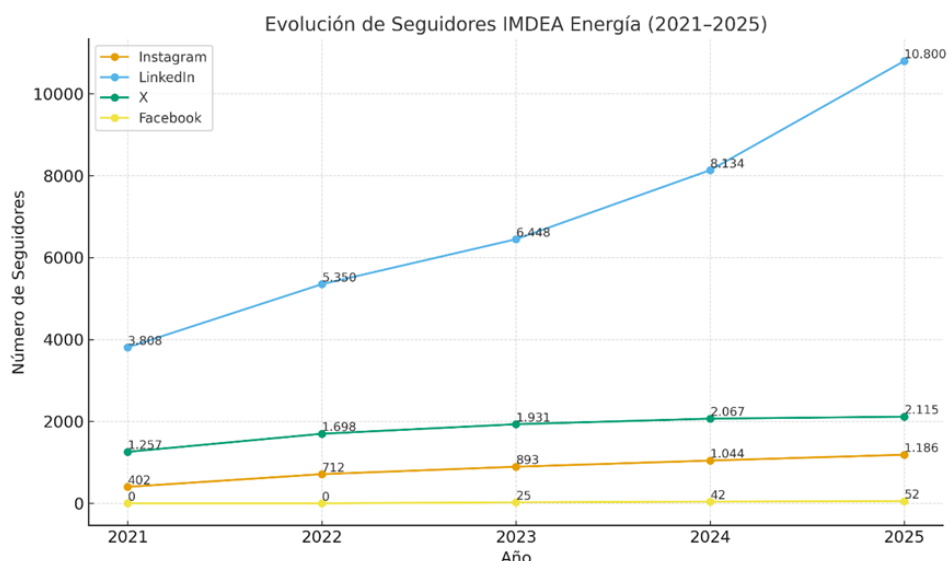


Figure 5. Evolution of followers on social networks.

Newsletters

newsletter were distributed , reaching 3,281 contacts, a 26% increase compared to the previous year (2,600 subscribers in 2024). Newsletters were sent in January, April, July, and October, including an additional edition in January dedicated to science outreach events, *"Science and Energy with a Woman's Name."*

An average of 1,098 opens and 141 clicks per submission have been recorded, which translates into an average open rate of 33.5% and an average click rate of 4.3%, with a notable increase in open rates between July and October.

Web page

The institutional website has consolidated its role as the main source of external information with 5,249 new users and 36,307 visits from January to the end of October 2025. In addition, 42 news items were published during this period .

Media

During 2025, 60 media mentions were recorded, both in specialized and general media, including print, digital, and radio outlets. These mentions have helped to increase the visibility of the Institute's activities and achievements.

Outreach activities

In 2025, several science outreach events were organized and coordinated with the aim of bringing science closer to diverse audiences and fostering citizen and educational participation. These activities included the International Day of Women and Girls in Science, the Madrid es Ciencia (Madrid is Science) Fair, Earth Day (which included a student visit to the institute's facilities), the European Researchers' Night, and Science Week, which featured visits to the student center. These initiatives generated a direct impact on the community and promoted the participation of students and the general public in the center's scientific activities.

ACTIVITIES PLANNED FOR 2026

3.1. Organizational structure

Regarding the organizational structure of the Institute, the creation of the Technological Development and Innovation Area is planned for the year 2026 with a dual objective: to develop projects for companies and to implement tools based on artificial intelligence in the Institute, both in the field of research and management.

The Board of Trustees will hold two ordinary meetings in June and November-December, whose main objective will be to approve the annual accounts for 2025 and the action plan for the year 2027, respectively.

The meeting of the Scientific Council of the IMDEA Energy Institute will take place in June 2026, in which the evaluation of the results and scientific activities developed by the Institute in 2025 is planned.

3.2. Human Resources

As shown in Table 2, it is estimated that during 2026 there will be 15 staff departures and 17 new hires. Therefore, the Institute's workforce is projected to reach a total of 160 people by the end of 2026.

Table 2. IMDEA Energy staffing situation estimated at the end of 2025 and forecast for 2026.

TOTAL WORKERS 31/12/2025 (provisional data)	2026 HIRES	2026 LEAVES	TOTAL ESTIMATED WORKERS 31/12/2026
158	17	15	160

During the year 2026, the actions planned in the action plan of the European HRS4R - Human Resources Seal will continue to be carried out. Strategy for Researchers, to improve the procedures for hiring, training and professional development of the center's researchers, continuing the Institute's mentoring plan, promoting new training activities and company internship programs.

3.3. Infrastructure

3.3.1. Headquarters

During the year 2026, it is planned to continue adapting spaces in the building to create new work areas, as well as continuing to carry out improvements and conservation and maintenance tasks on the existing facilities.

Specifically, on the plot adjacent to the Foundation's headquarters, a technical room is planned to house the battery testing equipment and a control room that will serve the solar field, the hydrogen production system by high-temperature electrolysis, and the steam production, thermal and electrical storage systems associated with the electrolyzer.

3.3.2. Scientific equipment

In 2026, the acquisition of scientific equipment will continue, funded by R&D projects, contracts with companies, and calls for proposals for scientific equipment from the Ministry of Science and Innovation. Some examples of the most significant scientific equipment and software planned for acquisition next year are as follows:

- Glove box with 4 glove ports, designed to operate in an oxygen-free but humid atmosphere.
- Integrated containerized balance of plant (BoP) system for a 9 kW high-temperature electrolyzer, including heat recovery in the anode and cathode streams.
- New flux density characterization system in solar receivers
- Solar receiver for CCD cameras for optical characterization.
- Automated fermentation system with low volume yeasts.
- Additional equipment from the OPAL-RT platform will be integrated into the SEIL laboratory for electrical network studies using HIL (Hardware-In- the - Loop) testing.
- Automated system for synthesis and combinatorial reactions.

3.3.3 . Other equipment

As a complement to the new infrastructure housed on the plot adjacent to the Foundation building, where research and demonstration activities in solar concentration, high-temperature hydrogen electrolysis and energy storage are carried out, several auxiliary units are planned to be incorporated, such as:

- System for the production and storage of steam generated by solar concentration.
- Compressed gas storage and distribution system.
- Container intended to serve as a mechanical workshop to support research and demonstration infrastructures.

3.4. Research activities

3.4.1. Research lines

The strategic R&D lines and the commitments acquired in the different research projects will give rise to the following scientific activities during the year 2026:

Production of sustainable fuels

- Optimization of the anaerobic digestion of municipal solid waste to produce biogas with fresh and pretreated substrate.
- Production of sustainable aviation biofuels from microbial oils generated by yeasts.
- Anaerobic fermentation as an innovative technology for the production of compounds of interest (carboxylates) and energy vectors.
- Optimization of cell factories for the production of methane and sustainable aviation biofuels from high ionic conductivity waste.
- Thermocatalytic valorization (pyrolysis, hydropyrolysis, hydrothermal liquefaction) of organic waste of different origins into liquid fuels and chemical compounds of commercial interest.
- Design and preparation of new catalysts for fuel desulfurization.
- Development of catalysts and catalytic processes for the sustainable production of aviation fuels.
- Catalytic processes for the removal of contaminants and improvement of properties of pyrolysis oils from organic solid waste.
- Catalytic conversion of bioalcohols to sustainable fuels via dehydration + oligomerization routes.
- Development of redox materials for the production of synthesis gas by dry reforming of biogas ($\text{CH}_4 + \text{CO}_2$) in thermochemical cycles.
- Development of zeolites with dendritic morphology and improved properties for application in obtaining sustainable fuels, adsorption of contaminants and release of active ingredients.
- Development of reactors, devices and hybrid photo(electro)catalysts with high activity in obtaining solar fuels and chemicals (hydrogen, low molecular weight hydrocarbons, ammonia, etc.) by means of photocatalytic, photothermocatalytic and photoelectrochemical processes.
- Integration of artificial intelligence in automated laboratories for the development of new materials for the production of sustainable fuels.

Solar energy harnessing technologies

- Obtaining new lead-free solar absorbers for photovoltaic cells and memory resistors.
- Study of photo(thermo)catalysis, photo-electrocatalysis and PV-electrocatalysis processes, mediated with sunlight, for the production of solar fuels and chemicals.
- Synthesis of multifunctional materials manufactured by additive printing with optimized structures for the absorption of solar energy with a view to the production of synthetic fuels and the decarbonization of intensive industrial processes.
- Implementation of non-invasive techniques for in situ and in-operando diagnosis of soiling in solar installations.
- Design and testing of optical devices and techniques for measuring concentrated solar flux density.
- Automation of the pointing strategy in heliostat fields through combined use of control algorithms and machine vision techniques.
- Assessment of the glare impact of solar concentration technologies.
- Design and characterization of new solar receptors in relevant solar concentration environments.
- Synthesis of solar fuels using thermochemical cycles and concentrated solar energy from mixtures of H_2O , CO_2 and CH_4 . Combined tests in high flux solar simulators and on the high solar concentration platform.
- Analysis of the integration of new heat transfer fluids (particles, supercritical CO_2) and thermal storage fluids (particles) in solar concentration systems for the production of electricity and industrial heat.

- Studies to reduce the cost of CSP plants by allowing their participation in the electricity grid's auxiliary services markets.

Energy storage

- Materials for thermochemical storage based on MOFs, perovskites and hydroxides.
- Materials and storage systems using phase change.
- New porous hybrid materials as membrane components for low-temperature electrolyzers.
- Flow battery mediated using organic (polymers) and inorganic (Prussian blue) energy amplifiers.
- Micro flow battery using immiscible electrolytes and online composition analysis by UV-Vis.
- New electrochemical reactor for operating membrane-less redox flow batteries.
- Synthesis of redox porous polymers (CMPs, COFs and/or hyperbranched) and application as an electrode for monovalent ion batteries (e.g. Li, Na, K) and organic batteries.
- Synthesis of redox porous polymers (CMPs, COFs and/or hyperbranched) and application to multivalent batteries (e.g. Zn, Mg, Ca)-organic batteries.
- Redox porous polymers (CMPs, COFs and/or hyperbranched) as solid mediators for redox-mediated flow batteries.
- Three-phase flow batteries (3 immiscible liquids) with self-discharge mitigation.
- Advanced aqueous electrolytes for Zn batteries.
- Manufacturing of high areal capacity polymeric electrodes ($>3 \text{ mAhg}^{-1}$).
- Development of a methodology to predict performance and optimize the architecture of 3D electrodes in electrochemical energy storage devices.
- Design and characterization of hybrid energy storage systems to serve the energy demand of temporary military camps in remote areas.
- Battery recycling strategies using electrochemical methods.
- Analysis and development of thermal storage systems (sensible heat and phase change) for integration into steam generation systems aimed at high-temperature electrolyzers.

Efficient use of energy

- Electrical and thermal management in the solarized operation of high-temperature electrolyzers.
- Efficient hydrogen production by wastewater electrolysis at reduced cell voltages.
- Electrochemical treatment of wastewater combined with the capture of high value-added compounds, destruction of pollutants, or production of compounds of interest through conversion reactions.
- High efficiency reactor for the electro-destruction of organic pollutants in wastewater combined with the photoelectro-conversion of CO_2 into chemical compounds and fuels.
- New multifunctional hybrid materials as fuel cell components.
- Development of pilot-scale continuous systems for wastewater treatment using new absorbent materials and/or photocatalysts.
- New porous materials for the removal and valorization of emerging organic contaminants in wastewater and drinking water.
- Development of new agrochemicals combining greater efficiency and a lower environmental impact.
- Development of smart composites capable of storing various species in their porosity and responding to different stimuli (e.g., light, radiation, magnetic field) with potential in the field of detection and nanomedicine.
- New materials for the development of photobatteries .
- New materials for the development of smart windows.

Electricity demand management and electricity networks

- Microgrid modeling, development of optimization-based algorithms for real-time balancing of energy systems, improvements in energy efficiency and sustainability in smart cities.
- Studies of grid stability and electrical microgrids with massive penetration of renewable energies.

- Development of control algorithms for power electronics converters applied in electrical networks, damping of power oscillations, weak networks, direct current networks and integration of energy storage and renewable energy sources.
- Improving harmonic power quality in grid integration of photovoltaic (PV) and energy storage (ESS) systems.
- Model reduction techniques for network integration of Virtual Power Plants (VPP).
- Dynamic reactive power compensation techniques using power electronic converters to provide advanced auxiliary services in electrical networks.
- Optimized sizing and location of energy storage systems in Spain's electricity networks to meet future emissions reduction targets, taking into account power line constraints.

CO₂ valorization

- Development of redox materials and catalysts for the production of synthesis gas through thermo-chemical dry reforming cycles (with CO₂) of methane.
- Production of synthetic aviation fuels through processes based on the catalytic hydrogenation of CO₂.
- Development of new hybrid catalysts (perovskites, MOFs) for CO₂ valorization through various reactions (e.g., cycloaddition).
- Development of composite materials by confining organic or inorganic (photo)active species in ordered porous materials for artificial photosynthesis.
- Design and synthesis of novel hybrid multifunctional photocatalysts (organo-inorganic, MOFs, up-conversion, etc.) for artificial photosynthesis. Confinement of photoactive species (organic or inorganic) in ordered porous materials for artificial photosynthesis.
- Development of photocatalytic and photoelectrochemical devices and reactors for the production of fuels and value-added products by CO₂ reduction.
- Integration of automation systems with artificial intelligence for the development of catalysts and devices used for the production of solar fuels.

Analysis and evaluation of energy systems

- Analysis of the sustainability of the life cycle of hydrogen systems.
- Development of product environmental footprint category rules in hydrogen systems.
- Safe and sustainable design methodology applied to hydrogen systems.
- Simulation and techno-economic evaluation of sustainable aviation fuel production routes via thermo- and biochemical routes.
- Techno-economic evaluation of circular multi-product biorefineries.
- Techno-economic analysis of biorefineries based on Madrid agri-food waste.
- Sustainability analysis of the life cycle of waste valorization processes and recycled materials.
- Environmental, social and material criticality analysis of alternative energy storage systems in military camps.
- Definition of the set of hydrogen technologies and competitors that can participate in the future technological mix to achieve a sustainable and carbon-neutral society by 2050.
- Modeling, scaling and prospective analysis of systems based on photoactivated processes.
- Prospective analysis of national energy generation scenarios under technical and sustainability constraints.

Sustainable nuclear energy

- Since the end of 2025, the design of a research program in nuclear fission energy has been initiated, with the collaboration of specialists, research centers, universities and companies based in the Community of Madrid.
- The objective for 2026 is to define a strategic plan, coordinated by IMDEA Energy, to launch lines of research in nuclear fission technologies of interest for their application in the Community of Madrid.

3.5.2. Research projects and staff grants

IMDEA Energy begins 2026 with a total of 54 on-going research projects funded through competitive calls, of which 6 are regional projects, 19 are national projects, 6 are industrial projects and 23 are international projects.

The Institute's project portfolio is characterized by its focus on applied research aimed at solving industrial problems, the diversity of its funding sources, and its high degree of collaboration with industries and research centers in the energy sector. It is also expected that new proposals, both submitted and under development, will lead to a further increase in the number of R&D projects by 2026, particularly within the Horizon Europe program and national calls for proposals. It is worth noting that among the ongoing international projects is an Advanced Grant awarded by the European Union Research Council has provided a total of €2.37 million in funding. Furthermore, the IMDEA Energy Institute is coordinating six European Union projects. This data demonstrates the international leadership of IMDEA Energy researchers.

On the other hand, the year 2026 begins with 29 active personnel grants: 1 Marie Skłodowska Curie, 6 Ramón y Cajal grants, 3 Comunidad of Madrid Talent Attraction grants, 1 Juan de la Cierva postdoctoral research grant, 17 predoctoral scholarships and 1 technician grant.

The following are the research projects that will be active throughout 2026:

R&D Regional Projects

1. Project: ACES4NET0-CM: "Energía solar de concentración para los objetivos net-zero en procesos industriales y transporte" (TEC-2024/ECO-116). Participantes: IMDEA Energy Institute (Coordinator); URJC; ICP-CSIC; UPM; UC3M; UNED; CIEMAT. Program of R&D activities between research groups in Technology 2024. Comunidad de Madrid. IMDEA Energy Institute external funding: 247.950 €. Period: 2025-2028.
2. Project: FotoArt5.0-CM: "Laboratorios Inteligentes para la Ciencia del Futuro: Descubrimiento de materiales avanzados para Fotosíntesis Artificial" (TEC-2024/TEC-308). Partners: IMDEA Energy Institute (Coordinator); IMDEA Nanoscience Institute; ICMM-CSIC; ICP-CSIC; UAM; UAM; UC3M. Program of R&D activities between research groups in Technology 2024. Comunidad de Madrid. IMDEA Energy Institute external funding: 239.400 €. Period: 2025-2028.
3. Project: CMOFs4water-CM: "Covalent and Metalorganic Frameworks for water purification of pharmaceutical contaminants" (TEC-2024/ECO-332). Partners: IMDEA Energy Institute (Coordinator); IMDEA Water Institute; ICMM-CSIC; UCM; UAM. Program of R&D activities between research groups in Technology 2024. Comunidad de Madrid. IMDEA Energy Institute external funding: 215.887,50 €. Period: 2025-2028.
4. Project: PREDFLEX-CM: "Programa de redes eléctricas digitales, estables y flexibles" (TEC-2024/ECO-287). Participantes: Partners: IMDEA Energy Institute (Coordinator); Universidad Pontificia Comillas de Madrid; UC3M; UAH; URJC. Program of R&D activities between research groups in Technology 2024. Comunidad de Madrid. IMDEA Energy Institute external funding: 208.500,00 €. Period: 2025-2028.
5. Project: SOLENER-CM: "Desarrollo de SOLuciones para el sistema ENERgético de la Comunidad de Madrid: mejora de la gestionabilidad de la generación renovable por medio de sistemas de conversión y almacenamiento híbrido" (TEC-2024/ECO-31). Partners: ICV-CSIC (Coordinator); ICTP-CSIC; INTA; IMDEA Energy Institute; UCM; CIEMAT; UPM. Program of R&D activities between research groups in Technology 2024. Comunidad de Madrid. IMDEA Energy Institute external funding: 162.450,00 €. Period: 2025-2028.
6. Proyecto: BIVALIA-CM: "Biorrefinerías integradas para la valorización de residuos de la industria agroalimentaria en productos de elevado valor añadido en la región de Madrid" (TEC-2024/BIO-177).

Partners: URJC (Coordinator); UAM; IMDEA Energy Institute; CIEMAT; ICP-CSIC. Program of R&D activities between research groups in Technology 2024. Comunidad de Madrid. IMDEA Energy Institute external funding: 186.698,75 €. Period: 2025-2028.

R&D National Projects

1. Project: FOTOFUEL: "New challenges in the production of solar fuels" (RED2022-134295-T). Partners: IMDEA Energy Institute (Coordinator); Universitat Jaume I de Castello; ICIQ; ITQ-CSIC; IREC; CIEMAT; UPM; ALBA-CELLS; IMDEA Materials Institute; University of Alicante; University of Barcelona; ICMM-CSIC; ICMS-CSIC; ICP-CSIC; University of Cantabria. *Redes de investigación 2022*. Ministry of Science and Innovation. IMDEA Energy Institute external funding: 23.000 €. Period: 2023-2026.
2. Project: E3TECH-PLUS: "Environmental and Energy Applications of Electrochemical Technology to face the Challenges of the Water-Energy Nexus" (RED2022-134552-T). Partners: University of Castilla-La Mancha (Coordinator); Universitat Politècnica de Catalunya; University of Cantabria; Universitat Politècnica de València; IMDEA Energy Institute; University of La Laguna; Autònoma University of Madrid; University of Barcelona; University of Vigo; University of Alicante; Complutense University of Madrid; Autònoma University of Barcelona; Centro Nacional de Experimentación en Tecnologías del hidrógeno y las pilas de combustible; Polytechnic University of Cartagena. *Redes de investigación 2022*. Ministry of Science and Innovation. Period: 2023-2026.
3. Project: NITRO-D-CELL: "Nuevo electrolizador basado en derivados de urea" (PRH2CVAL4-C1-2022-0113). Partners: Generaciones Fotovoltaicas de La Mancha (GFM) (Coordinator); IMDEA Energy Institute. PERTE Cadena de valor P4. Instituto para la Diversificación y Ahorro de la Energía (IDAE) / European Union NextGenerationEU / PRTR. IMDEA Energy Institute external funding: 160.818,45 €. Period: 2023-2026.
4. Project: NAPOLION: "New Advanced coordination POLymers for CO₂ valorizatiON" (PID2022-139956OB-I00). Partners: IMDEA Energy Institute. *Proyectos de Generación de Conocimiento 2022*. Ministry of Science and Innovation / FEDER-UE. IMDEA Energy Institute external funding: 181.250 €. Period: 2023-2026.
5. Project: N-GREEN: "Solar-driven nitrogen fixation to green fuels and chemicals" (PID2022-141688OB-I00). Partners: IMDEA Energy Institute. *Proyectos de Generación de Conocimiento 2022*. Ministry of Science and Innovation / FEDER-UE. IMDEA Energy Institute external funding: 250.000 €. Period: 2023-2026.
6. Project: REDESFUERTES: "Coordinated Management and Control of Grid-Forming Power Converters for Low Inertia Power Grids" (PID2022-142416OB-I00). Partners: IMDEA Energy Institute. *Proyectos de Generación de Conocimiento 2022*. Ministry of Science and Innovation / FEDER-UE. IMDEA Energy Institute external funding: 113.750 €. Period: 2023-2026.
7. Project: "Análisis termogravimétrico y calorimetría de barrido diferencial simultáneos para aplicaciones en hidrógeno" (EQC2024-008538-P). Partners: IMDEA Energy Institute. Convocatoria 2024 de ayudas para la adquisición de equipamiento científico-técnico. Ministry of Science, Innovation and Universities / FEDER-UE. IMDEA Energy Institute external funding: 178.475 €. Period: 2024-2026.
8. Project: HYPY-CAT: "Catalytic hydrolysis of residues/wastes from microalgae, plastics and textiles" (PID2023-147355OB-C21). Partners: IMDEA Energy Institute (Coordinator); Rey Juan Carlos University. *Proyectos de Generación del Conocimiento 2023*. Ministry of Science, Innovation and Universities / FEDER-UE. IMDEA Energy Institute external funding: 255.375 €. Period: 2024-2027.
9. Project: CEL_BIONIC: "Production of resilient microbial cell factories adapted to high ionic strength waste streams for efficient bioenergy production" (PID2023-150955OB-C33). Partners: University of Valladolid (Coordinator); CIEMAT; IMDEA Energy Institute. *Proyectos de Generación del Conocimiento 2023*.

Ministry of Science and Innovation / FEDER-UE. IMDEA Energy Institute external funding: 187.500 €. Period: 2024-2027.

10. Project: AGATA: “Thermal management in Advanced solar Thermochemical reactors for solar fuel production” (PID2023-153368OB-I00). Partners: IMDEA Energy Institute. *Proyectos de Generación del Conocimiento 2023*. Ministry of Science, Innovation and Universities / FEDER-UE. IMDEA Energy Institute external funding: 126.250 €. Period: 2024-2027.
11. Project: NET4BAT: “Novel Electrochemical Separation and Conversion Technologies for a Sustainable Battery Manufacturing Industry” (PID2023-153183OA-I00). Partners: IMDEA Energy Institute. *Proyectos de Generación del Conocimiento 2023*. Ministry of Science, Innovation and Universities / FEDER-UE. IMDEA Energy Institute external funding: 175.000 €. Period: 2024-2027.
12. Project: B3ES: “Optimization strategies for 3D battery electrodes” (PID2023-148703OA-I00). Partners: IMDEA Energy Institute. *Proyectos de Generación del Conocimiento 2023*. Ministry of Science, Innovation and Universities / FEDER-UE. IMDEA Energy Institute external funding: 150.000 €. Period: 2024-2027.
13. Project: BioMOFTion: “Biological barrier crossing by self-propelled Metal-Organic Frameworks” (PID2023-146253NA-I00). Partners: IMDEA Energy Institute. *Proyectos de Generación del Conocimiento 2023*. Ministry of Science, Innovation and Universities / FEDER-UE. IMDEA Energy Institute external funding: 94.757,50 €. Period: 2024-2026.
14. Project: MENTES: “Strategic Network for Energy Modeling in a Sustainable Energy Transition” (RED2024-153580-E). Partners: Fundación Tecnalia (Coordinator); Fundación IMDEA Energía; Universidad Pública de Navarra; CIEMAT; Fundación Agencia Aragonesa para la Investigación y desarrollo; Universidad de Valladolid; Universidad de Castilla La Mancha; Universidad Pontificia Comillas; BC3 Research. *Redes de investigación 2024*. Ministry of Science, Innovation and Universities. Period: 2025-2027.
15. Project: LIGNOCEL: “Sustainable Use of Lignocellulosic Biomass through Biotechnological Tools in the Transition to a Circular Bioeconomy” (RED2024-153800-T). Partners: INIA-CSIC (Coordinator); CIEMAT; Fundación IMDEA Energía; Universidad de Valladolid; Universidad de Jaén; Universidad Autónoma de Barcelona; Universitat Politècnica de Catalunya; Universidad de Santiago de Compostela; ICP-CSIC; CIB-CSIC; IRNASE-CSIC. *Redes de investigación 2024*. Ministry of Science, Innovation and Universities. Period: 2025-2027.
16. Project: BIOCATFLY: “Production of sustainable aviation fuels from the conversion of biowaste derived alcohols and carboxylic acids via olefin intermediates” (PID2024-157003OB-C22). Partners: Rey Juan Carlos University (Coordinator); IMDEA Energy Institute. *Proyectos de Generación del Conocimiento 2024*. Ministry of Science, Innovation and Universities / FEDER-UE. IMDEA Energy Institute external funding: 240.000 €. Period: 2025-2028.
17. Project: HOPE-BAT: “Higher-Order topology Polymer Electrodes: the key to practical organic Batteries” (PID2024-160166OB-I00). Partners: IMDEA Energy Institute. *Proyectos de Generación del Conocimiento 2024*. Ministry of Science, Innovation and Universities / FEDER-UE. IMDEA Energy Institute external funding: 255.000 €. Period: 2025-2028.
18. Project: ProsConsHy: “Prospective consequences of hydrogen deployment in Spain: sustainability assessment for integrated energy planning” (PID2024-157951OB-I00). Partners: IMDEA Energy Institute. *Proyectos de Generación del Conocimiento 2024*. Ministry of Science, Innovation and Universities / FEDER-UE. IMDEA Energy Institute external funding: 143.750 €. Period: 2025-2028.
19. Proyecto: PHONON: “Full solar-spectrum exploitation for scalable photothermal ammonia production using non-critical materials” (PID2024-162925OB-I00). Partners: IMDEA Energy Institute. *Proyectos de Generación del Conocimiento 2024*. Ministry of Science, Innovation and Universities / FEDER-UE. IMDEA Energy Institute external funding: 172.500 €. Period: 2025-2028.

R&D Industrial Projects

1. Project: HYLIOS: “Innovative photocatalytic systems for the production of green hydrogen from wastewater” (CPP2022-010052). Partners: Lantania Aguas (Coordinator); Asociación para la investigación y desarrollo tecnológico de la Industria de Castilla La Mancha (ITECAM); Universitat Politècnica de Valencia; Ansasol; IMDEA Energy Institute. Proyectos de colaboración público-privada 2022. Ministry of Science and Innovation / European Union NextGenerationEU / PRTR. IMDEA Energy Institute external funding: 127.240,05 €. Period: 2023-2026.
2. Project: Dynamic-Compensation: “DYNAMIC System for COMPENSATION of Active and Reactive Power in Power Systems Applications” (CPP2022-010120). Partners: RTR Energía (Coordinator); IMDEA Energy Institute. Proyectos de colaboración público-privada 2022. Ministry of Science and Innovation / European Union NextGenerationEU / PRTR. IMDEA Energy Institute external funding: 175.002,15 €. Period: 2023-2026.
3. Project: MAD VUELA SOSTENIBLE: “HUB de innovación de combustibles de aviación sostenibles (SAF) de la Comunidad de Madrid” (59/180948.9/23). Partners: Repsol (Coordinator); IMDEA Energy Institute; Evoenzyme; Ariema Energía y Medioambiente. Comunidad de Madrid / FEDER-UE. IMDEA Energy Institute external funding: 1.120.885,86 €. Period: 2024-2027.
4. Project: SHEAR: “Supercondensador Híbrido basado en Electrolitos con Actividad Redox” (IND2023/AMB-28674). Partners: Micro Electrochemical Technologies (B5tech); IMDEA Energy Institute. Industrial Doctorates 2023. Comunidad de Madrid. IMDEA Energy Institute external funding: 90.000 €. Period: 2024-2027.
5. Project: BASSERE: “Supercapacitive Batteries for providing Balancing Services in Power Grids” (CPP2023-010851). Partners: Micro Electrochemical Technologies (B5tech) (Coordinator); IMDEA Energy Institute. Proyectos de colaboración público-privada 2023. Ministry of Science, Innovation and Universities / FEDER-UE. IMDEA Energy Institute external funding: 399.768,85 €. Period: 2024-2027.
6. Project: noPFAS: “Diseño de materiales porosos multifuncionales para la eliminación de sustancias perfluoroalquiladas y polifluoroalquiladas (PFAS) en agua potable” (IND2024/AMB-34307). Partners: Canal de Isabel II S.A.; IMDEA Energy Institute. Convocatoria de ayudas para la realización de doctorados industriales 2024. Comunidad de Madrid. . IMDEA Energy Institute external funding: 90.000 €. Periodo: 2025-2028.

R&D International Projects

1. Project: PROMETEO: “Hydrogen PROduction by MEans of solar heat and power in high TEMperature Solid Oxide Electrolysers” (101007194). Partners: Agenzia Nazionale per le Nuove Tecnologie, L'energia e lo Sviluppo Economico Sostenibile (ENEA) (Coordinator); Capital Energy S.L.; Fondazione Bruno Kessler; Solidpower SA; IMDEA Energy Institute; Snam S.p.A.; École Polytechnique Fédérale de Lausanne; Nextchem SRL; Stamicarbon B.V. H2020-JTI-FCH-2020-1 (FCH-02-2-2020). European Union. IMDEA Energy Institute external funding: 150.625,00 €. Period: 2021-2026.
2. Project: TODENZE: “Opening the pathway towards dendritic zeolites” (101021502). Partners: IMDEA Energy Institute. ERC-2020-ADG. European Union. IMDEA Energy Institute external funding: 2.378.438 €. Period: 2021-2026.
3. Project: BIOCTANE: “Synergetic integration of BIOteChnology and thermochemical CaTalysis for the cAscade coNvErsion of organic waste to jet-fuel” (101084336). Partners: IMDEA Energy Institute (Coordinator); Technische Universität Hamburg; Institut National de Recherche pour L'agriculture, L'alimentation et L'environnement; Paul Scherrer Institut (Associated); Universidad Rey Juan Carlos; Aviation Initiative for Renewable Energy in Germany e.V. HORIZON-CL5-2021-D3-03-03. European Union. IMDEA Energy Institute external funding: 594.274 €. Period: 2022-2026.

4. Project: DESIRED: "Direct co-processing of CO₂ and water to sustainable multicarbon energy products in novel photocatalytic reactor" (101083355). Partners: Consorzio Interuniversitario Reattività Chimica e Catalisi (Coordinator); Institut für Nachhaltige Technologien; Univerzita Karlova; EBOS Technologies LTD; IMDEA Energy Institute; Innovative Catalysis for Carbon Recycling and Biopolymers; Uniwersytet Warszawski. HORIZON-CL5-2021-D3-03-02. European Union. IMDEA Energy Institute external funding: 239.313 €. Period: 2022-2026.
5. Project: NOMAD: "NOvel energy storage technologies usable al MilitAry Deployments in forward operating bases" (101074995). Partners: Equipos Moviles De Campana SA (Coordinator); Commissariat A L Energie Atomique Et Aux Energies Alternatives; Fraunhofer Gesellschaft Zur Foerderung Der Angewandten Forschung E.v.; IMDEA Energy Institute; Instituto Nacional De Tecnica Aeroespacial Esteban Terradas; Intracom Defense Single Member S A; Interneshanal Pauar Saplay Ad; Pipistrel Vertical Solutions Doo Podjetje Za Napredne Letalske Resitve; Quinteq Energy B.v.; Skeleton Technologies Ou; Skoon Energy B.V.; Teces, Tehnološki Center Za Električne Stroje ; Thales Programas De Electronica Y Comunicaciones SA; Thales; Nederlandse Organisatie Voor Toegepast Natuurwetenschappelijk Onderzoek Tno; Jenoptik Power Systems GmbH; Institutt For Energiteknikk; GmbH; F4ster - Future 4 Sustainable Transport And Energy Research Institute Zartkoruen Mukodo Tarsasag. EDF-2021-ENERENV-D-NGES. European Union. IMDEA Energy Institute external funding: 1.031.810,43 €. Period: 2022-2027.
6. Project: NIMPHEA: "Next generation of improved High Temperature Membrane Electrode Assembly for Aviation" (101101407). Partners: Safran Power Units (Coordinator); Safran SA; Advanced Energy Technologies AE Ereunas & Anaptyxis Ylikon & Proiontonananeosimon Pigon Energieias & Synafon Symvouleftikon y Piresion; Commissariat A L Energie Atomique Et Aux Energies Alternatives; Fraunhofer Gesellschaft Zur Forderung Der Angewandten Forschung EV; Centre National de la Recherche Scientifique CNRS; Universite de Strasbourg (affiliated); IMDEA Energy Institute. HORIZON-JTI-CLEANH2-2022-03-08. European Union. IMDEA Energy Institute external funding: 273.000 €. Period: 2023-2027.
7. Project: PCoN-M3: "Precise Control of Nanoporous Materials in Multi-dimensional Morphology" (PCI2023-143433). Partners: University of Tokyo (Coordinator); Hiroshima University; Charles University; IMDEA Energy Institute. EIG CONCERT-Japan 2022. Joint Call on Design of Materials with Atomic Precision. PCI 2023. Ministry of Science and Innovation. IMDEA Energy Institute external funding: 125.840 €. Period: 2023-2026.
8. Project: ASTERIX-CAESar: "Air-based Solar Thermal Electricity for efficient Renewable energy Integration & compressed air energy storage" (101122231). Partners: Fundación CENER (Coordinator); Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT); Universidad de Sevilla; Bluebox Energy Ltd; Doosan Škoda Power; Università degli Studi Roma Tre; Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e. V; Clancy Haussler Rita (EURIDA); Aalborg CSP AS; European Turbine Network (ETN); IMDEA Energy Institute; SoftInWay Switzerland LLC; Innovation Therm Technologies, S.L.; Walter E.C. Pritzkow Spezialkeramik (WPS); Diacheiristis Ellinikou Diktyou Dianomis Elektrikis Energieias AE (Hellenic Electricity Distribution Network Operator); Engionic Femto Gratings GmbH; APRIA Systems SL. HORIZON-CL5-2022-D3-03-01. European Union. IMDEA Energy Institute external funding: 328.476,25 €. Period: 2023-2027.
9. Project: SUN-to-LIQUID II: "SUNlight-to-LIQUID - Efficient solar thermochemical synthesis of liquid hydrocarbon fuels using tailored porous-structured materials and heat recuperation" (101122206). Partners: Bauhaus Luftfahrt EV (Coordinator); Synhelion SA; IMDEA Energy Institute; Deutsches Zentrum Fur Luft - Und Raumfahrt Ev; Hygear Bv; L-Up SAS. HORIZON-CL5-D3-03-07. European Union. IMDEA Energy Institute external funding: 1.396.797,5 €. Period: 2023-2027.
10. Project: YAF: "Yeast-based solutions for sustainable Aviation Fuels" (101120389). Partners: IMDEA Energy Institute (Coordinator); Tallinna Tehnikaülikool; Danmarks Tekniske Universitet (DTU); Åbo Akademi; Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT);

Compañía Española de Petróleos SA (CEPSA); Bio Base Europe Pilot Plant VZW. Associated Partners: Imperial College of Science, Technology and Medicine Universidad Rey Juan Carlos, Universidad Complutense de Madrid, Universiteit Gent, Nutropy, Saso kocevar. HORIZON-MSCA-2022-DN-01. European Union. IMDEA Energy Institute external funding: 755.913,60 €. Period: 2023-2027.

11. Project: BETTERXPS: "Tackling the Peak Assignment Problem in X-ray Photoelectron Spectroscopy with First Principles Calculations" (101131173). Partners: Tartu Ulikool (Coordinator); IMDEA Energy Institute. Associated Partners: Lunds Universitet; Duke University; SPECS Surface Nano Analysis GmbH; Xiamen University; The Regents of the University of California; Scientia Omicron GmbH; Imperial College of Science Technology and Medicine; The University of Warwick; University College London. HORIZON-MSCA-2022-SE-01. European Union. IMDEA Energy Institute external funding: 55.200 €. Period: 2024-2027.
12. Project: eNargiZinc: "Towards innovative and affordable sodium- and zinc-based energy storage systems based on more sustainable and locally-sourced materials" (101120311). Partners: Universidad de Zaragoza (Coordinator); Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali; Imperial College of Science Technology and Medicine; Deragallera Ltd; Karlsruher Institut für Technologie (KIT); IMDEA Energy Institute; Centro de investigación Cooperativa de Energías Alternativas (CIC energiGUNE); The University of Warwick; Varta Microbattery GmbH; Midac SP; Universidad del País Vasco/ Euskal Herriko Unibertsitatea. HORIZON-MSCA-2022-DN-01. European Union. IMDEA Energy Institute external funding: 251.971,2 €. Period: 2024-2027.
13. Project: HyPEF: "Promoting an environmentally-responsible Hydrogen economy by enabling Product Environmental Footprint studies" (101137575). Partners: IMDEA Energy Institute (Coordinator); Istituto di Studi per l'integrazione dei Sistemi Societa' Cooperativa (ISSINOVA); Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile (ENEA); Europäisches Institut für Energieforschung (EIFER); Ecoinnovazione srl; ENGIE; Advanced Energy Technologies (ADVENT); Hexagon Purus GmbH. HORIZON-JTI-CLEANH2-2023-05-01. European Union. IMDEA Energy Institute external funding: 277.531,25 €. Period: 2024-2026.
14. Project: RISEnergy: "Research Infrastructure Services for Renewable Energy" (101131793). Partners: Karlsruher Institut für Technologie (KIT) (Coordinator); AIT Austrian Institute of Technology GmbH; Commissariat à l'Énergie Atomique et aux Énergies Alternatives (CEA); Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT); Consiglio Nazionale delle Ricerche (CNR); European Distributed Energy Resources Laboratories e.V (DERlab); Danmarks Tekniske Universitet (DTU); ECCSEL European Research Infrastructure Consortium; Alliance Européenne de Recherche dans le Domaine de L'energie (EERA); EnBW Energie Baden-Württemberg AG; Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile (ENEA); EPL Technology Frontiers Ltd; European Solar Research Infrastructure for Concentrated Solar Power (EU-SOLARIS ERIC); Forschungszentrum Jülich; Interuniversitair Micro-Electronica Centrum (IMEC); Nederlandse Organisatie voor toegepast-natuurwetenschappelijk onderzoek (TNO); University College Cork; IMDEA Energy Institute (affiliated entity). HORIZON-INFRA-2023-SERV-01-01. European Union. IMDEA Energy Institute external funding: 52.626,25 €. Period: 2024-2028.
15. Project: NIGHTMADRID: "Researchers and citizen creating together a better future" (101162110). Partners: Fundación para el Conocimiento Madri+d (Coordinator); Agencia Estatal Consejo Superior de Investigaciones Científicas (CSIC); Fundación del Sector Publico Estatal Centro Nacional de Investigaciones Oncológicas Carlos III (FSP CNIO); IMDEA Water Institute; IMDEA Energy Institute; IMDEA Food Institute; IMDEA Software Institute; Universidad de Alcalá (UAH); Universidad Autónoma de Madrid (UAM); Universidad Carlos III de Madrid (UC3M); Universidad Complutense de Madrid (UCM); Universidad Politécnica de Madrid (UPM); Universidad Rey Juan Carlos (URJC). HORIZON-MSCA-2023-CITIZENS-01. European Union. IMDEA Energy Institute external funding: 11.750 €. Period: 2024-2026.
16. Project HVDC4ISLANDS: "HVDC and Hybrid DC/AC Technologies for Reconfigurable Energy Islands" (Cetp-FP-2023-00045/PCI2024-155045-2). Partners: IMDEA Energy Institute (Coordinator); Rheinisch-

Westfälische Technische Hochschule Aachen (RWTH); Institute of Communication and Computer Systems (ICCS-NTUA); University College Cork - MaREI; Austrian Institute of Technology GmbH (AIT); SINTEF Energi AS; Subsea 7 Norway AS; Hystar AS; Fronius International GmbH. CETPartnership Joint Call 2023 / PCI 2024. Ministry of Science, Innovation and Universities / AEI. IMDEA Energy Institute external funding: 275.000 €. Period: 2024-2027.

17. Project: GUESS-WHY: "GUIdelinEs for Safe and Sustainable-by-design systems based on reneWable Hydrogen" (101165428). Partners: Università degli Studi di Perugia (Coordinator); IMDEA Energy Institute, Stargate Hydrogen Solutions, AVL List GmbH, Bluenergy Revolution Srl, SINTEF Energi AS, Univerza v Ljubljani, Commissariat à l'Énergie Atomique et aux Énergies Alternatives (CEA), Cluster Viooikonomias kai Perivallontos Dytikis, The Institute of Applied Energy (Associated). HORIZON-JTI-CLEANH2-2024-05-01. European Union. IMDEA Energy Institute external funding: 212.801,62 €. Period: 2025-2027.
18. Project: "Analyze Heliostat Field II". Partners: Centro Nacional de Energías Renovables (CENER) (Coordinador); Fundación IMDEA Energía; The Cyprus Institute (CYI); Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT); Deutsches Zentrum für Luft- und Raumfahrt (DLR); CENER. Collaboration: TEKNIKER; Fraunhofer ISE; UPM. SolarPACES Task III Project. IMDEA Energy Institute external funding: 7.840 €. Period: 2025-2026.
19. Project: HYDRAGON: "From Light to Energy: Synergetic Multifunctional Materials Driving Photoelectrochemical Hydrogen Generation" (12411). Partners: IMDEA Energy Institute (Coordinator); Korea Institute of Science and Technology; Jeonbuk National University; SAMWHAN CO., LTD; Istanbul Technical University; Charles University. M-ERA.NET 2024 / PCI 2025. Ministry of Science, Innovation and Universities / AEI. IMDEA Energy Institute external funding: 299.972 €. Period: 2025-2028.
20. Project: 3-Phase-BAT: "Three-phase Redox Flow Battery" (101213311). Partners: IMDEA Energy Institute. HORIZON-ERC-POC (ERC-2024-POC). European Union. IMDEA Energy Institute external funding: 150.000 €. Period: 2025-2026.
21. Project: BIOVAL: "Integrated BIOrefinery to VALorize CO₂ and biomass for the co-production of advanced biofuels and bioproducts" (101234808). Partners: IDENER RESEARCH & DEVELOPMENT AIE (Coordinator); BIOTREND-INOVACAO E ENGENHARIA EM BIOTECNOLOGIA SA; A4F ALGA FUEL SA; UNIVERSITEIT ANTWERPEN; ETHNICON METSOVION POLYTECHNION; INSTITUT NATIONAL DES SCIENCES APPLIQUEES DE TOULOUSE; IMDEA Energy Institute; NORVENTO SL; RINA CONSULTING - CENTRO SVILUPPO MATERIALI SPA. HORIZON-CL5-2024-D3-02-01. European Union. IMDEA Energy Institute external funding: 253.375,00 €. Period: 2025-2028.
22. Project: SUN-DT: "Smart Use of Novel Digital Tools for advanced performance and reduced costs in CSP tower plants" (101234781). Partners: Fundación CENER (Coordinator); Deutsches Zentrum für Luft- und Raumfahrt (DLR); CIEMAT; IMDEA Energy Institute, INAVITAS ENERJI ANONIM SIRKET; ACCIONA CONSTRUCCION SA; Cox Energy EPC, S.L.; EUROPEAN SOLAR THERMAL ELECTRICITY ASSOCIATION; FUNDACION IMDEA NETWORKS. HORIZON-CL5-2024-D3-02-03. European Union. IMDEA Energy Institute external funding: 418.794,70 €. Period: 2025-2028.
23. Project. WAVE: "Microbial-based bioprocesses towards dairy WAstewater reuse and conVersion into new bioplastics" (PCI2025-167116-2). Partners: IMDEA Energy Institute (Coordinator); Technical University of Denmark DTU; Universidad de Valladolid ISP-Uva; KTH Royal Institute of Technology; International Hellenic University IHU; 21st BIO. Water4All 2024 Joint Transnational Call, PCI 2025. Ministry of Science, Innovation and Universities / AEI. IMDEA Energy Institute external funding: 173.750 €. Period: 2025-2028.

3.5.3. Research contracts

IMDEA Energy begins 2026 collaborating with the business sector within the framework of 13 contracts, 9 of which are research contracts and 4 are contracts for carrying out tests:

1. Project: "Technical advice for the determination of polluting substances in a paint application process". Company: Mercedes Benz España (Spain). IMDEA Energy Institute external funding: 14.240 €. Period: 2018-2026.
2. Project: BAMOWI: "Testing of batteries for wireless surveillance devices". Company: Securitas Direct España / ESML / VERISURE (Spain). IMDEA Energy Institute external funding: 74.080 €. Period: 2019-2026.
3. Project: SACaFiRe: "Technical advice for carbon fiber recycling sustainability analysis". Company: Innovation Tree (Spain). IMDEA Energy Institute external funding: 44.000 €. Period: 2023-2027.
4. Project: UNBOUND "Technology and know-how licence agreement". Company: Unbound Potential GmbH (Switzerland). IMDEA Energy Institute external funding: 19.000 €. Period: 2023-2026.
5. Project: ESA: "Editorial Service Agreement". Company: ecoinvent Association (Switzerland). IMDEA Energy Institute external funding: 6.000 €. Period: 2024-2026.
6. Project: POR4water: "Determination of water vapour adsorption properties of porous materials". Institution: University of Granada (Spain). IMDEA Energy Institute external funding: 3.840 €. Period: 2025-2026.
7. Project: PQinPVESS: "Power Quality improvement in PV and ESS Plants". Company: Huawei Technologies Duesseldorf (Germany). IMDEA Energy Institute external funding: 185.000 €. Period: 2025-2027.
8. Project: ECO-BIOPULPA: "Estudio de la potencialidad de la biopulpa obtenida tras un pretratamiento de termohidrólisis de residuos sólidos urbanos para la producción de biocombustibles a escala de laboratorio". Company: ECONWARD (Spain). IMDEA Energy Institute external funding: 7.300 €. Period: 2025-2026.
9. Project: HTSE2Fuels: "Electrolyzer for fuel generation powered by concentrated solar steam". Company: SOLATOM (Spain). IMDEA Energy Institute external funding: 36.000 €. Period: 2025-2026.
10. Services RedLab Biopen. IMDEA Energy Institute external funding: 26.890 €. Period: 2020-present.
11. Services RedLab OperandoLab. IMDEA Energy Institute external funding: 6.840 €. Period: 2020-present.
12. Services RedLab TermoCat. IMDEA Energy Institute external funding: 74.785,80 €. Period: 2020-present.
13. Services Laboratorios Centrales de investigación. IMDEA Energy Institute external funding: 8.998,09 €. Period: 2021-present.

3.5.4 External funding of research activities and personnel grants

Figure 6 shows the evolution of the number of active R&D projects, contracts with companies and institutions, and personnel grants during the period 2020–2026. The data for 2026 are provisional; however, based on the information available today, at least 67 research projects and contracts are expected to be active next year. Additionally, there are 29 active personnel grants.

Only R&D grants and contracts with companies and institutions that have received a positive award decision or a signed agreement have been included. Furthermore, 26 proposals are currently under evaluation, suggesting that the number of R&D projects and grants underway in 2026 will increase in the coming months.

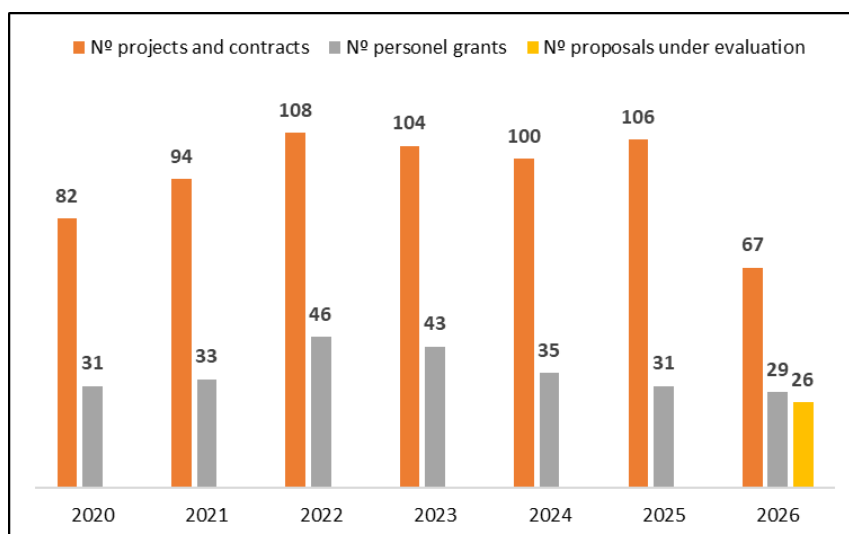


Figure 6. Evolution in the number of R&D projects and contracts and personnel grants in the period 2020 – 2026 (the data for the 2025 and 2026 annual periods are provisional).

Figure 7 shows the details of the evolution of the number of research projects and contracts with companies for the period 2020-2026, according to the type of project:

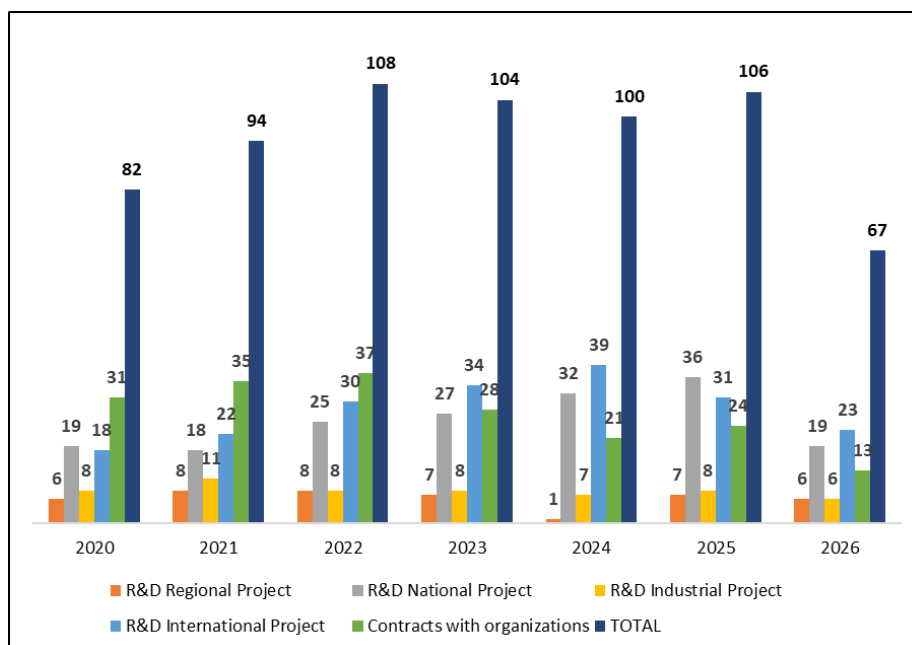


Figure 7. Evolution of the number of R&D projects and contracts in the period 2020 – 2026 according to the type of project (the data for the years 2025 and 2026 are provisional).

Figure 8 shows the evolution of the figures for external income generated each year in R&D activities in the period 2020 – 2026.

Work is currently underway to finalize the 2025 executed budget, and therefore the data presented in the following figure is a very preliminary estimation. In 2025, the majority of the funds allocated to the GREENH2-CM project were used, including, among others, work on the plot adjacent to the building. This is the main reason why the execution of the external funding this year will be significantly higher than in previous years. Regarding the 2026

fiscal year, once the projects financed with the European Union's resilience funds are completed, the total amount of executed income is expected to reach similar levels to those in the 2022, 2023, and 2024 fiscal years. In this respect, a total amount of external funds of €6.56 million has been estimated for the year 2026, of which €5.76 million corresponds to R&D projects and contracts with institutions, and €0.8 million to staff grants.

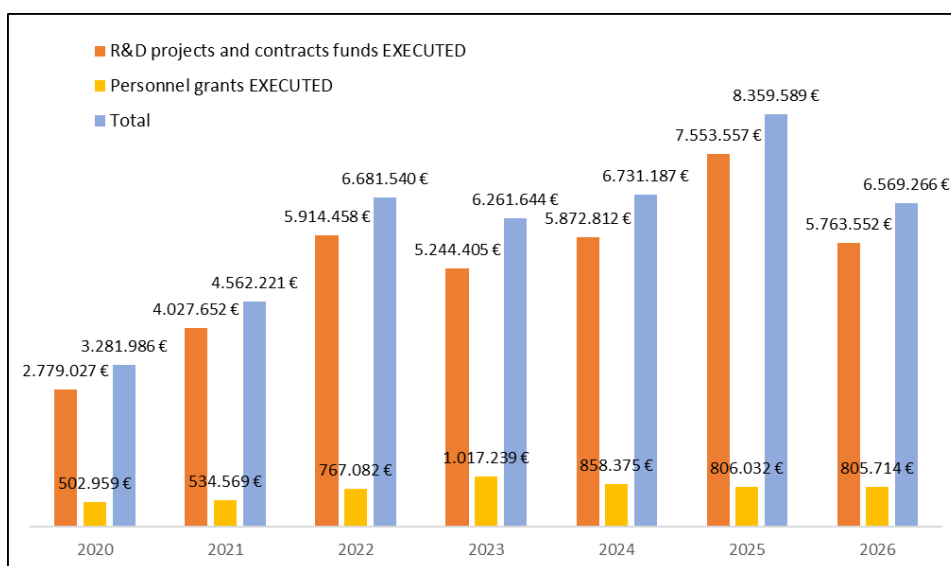


Figure 8. Evolution of external funding of the IMDEA Energy Institute in the period 2020 – 2026 (the data for the 2025 and 2026 annual periods are provisional).

3.5.5. Collaboration agreements and technology transfer actions

During 2026, the Institute will continue its collaborations with numerous universities. Of particular note, due to its importance, is the close cooperation with Rey Juan Carlos University, as well as with other universities in Madrid, such as the Polytechnic University, Autonomous University, Complutense University, University of Alcalá, Carlos III University, and Comillas Pontifical University. Other universities with which the Institute will collaborate on various projects include Chalmers University of Technology (Sweden), École Polytechnique Fédérale de Lausanne (EPFL) (Switzerland), Eidgenössische Technische Hochschule Zürich (ETHZ) (Switzerland), Friedrich-Schiller- Universität Jena (Germany), Justus -Liebig- universität Gießen (Germany), Katholieke University Leuven (Belgium), Norges Miljø-og biovitenskapelige Universitet (NMBU) (Norway), Technische University Braunschweig (Germany), The University of Clermont Auvergne (UCA) (France), University of Almería (Spain), University of Burgos (Spain), University of La Laguna (Spain), Università degli studi della Campania Luigi Vanvitelli (Italy), Università di Napoli (Italy), Université de Nantes (France), University College , London (United Kingdom), University of Antwerp (Belgium), University of Hamburg (Germany), University of Ljubljana (Slovenia), University of Tartu (Estonia), University of Santiago de Compostela (Spain)

Also noteworthy at the national level are the collaborations with CIEMAT, the Hydrogen Foundation of Aragon, ICIQ, and various CSIC centers, such as the Institute of Catalysis and Petrochemistry and the Institutes of Materials Science and Microelectronics in Madrid. Likewise, in Europe, collaborations will be established with leading research centers such as ENEA, the Alfred Wegener Institute (AWI), CNRS, CEA, DLR, FBK, and Fondazione Istituto Italiano di Tecnologia (IIT), Forschungszentrum Jülich , Fraunhofer, Helmholtz Institute Ulm (HUI), INRAE, INSA Toulouse, Institut Charles Gerhardt Montpellier (ICGM), Jožef Stefan Institute of Slovenia, Lithuanian Energy Institute , Institute of Chemistry (NIC) of Slovenia and The Cyprus Institute .

Cooperation with companies will continue to be an objective of IMDEA Energy throughout 2026, in which the implementation of the new Technology Transfer and Innovation Area is planned, as a new instrument to align its own research results and lines with the interests of companies and create technology-based companies.

The actions to attract industry and transfer technology will be based primarily on projects and the commitments to exploit the results outlined within them. This will involve organizing industry events and writing articles aimed at companies as part of the exploitation and dissemination efforts, as well as collaborating in the search for funding, prioritizing the most industrial and proof-of-concept projects. Regarding patents, the focus will be on technologies with the greatest potential for exploitation by third parties or by companies that may be created as startups within the Institute. Active participation in technology transfer dissemination events and conferences will also be maintained at trade fairs such as Genera, Transfiere, and S4i, as well as in other forums. Collaboration with sectoral platforms and associations will continue as a gateway to companies, and industrial events will be organized, either on our own initiative, particularly as a result of project implementation, or at the initiative of other entities such as technology platforms, associations, or CDTI (Center for the Development of Industrial Technology).

Table 3. Collaborations with companies planned for the year 2026.

Company	Cooperation
21st BIO (Denmark)	Collaboration in the WAVE project for the development of microorganism-based bioprocesses for the reuse of wastewater and its conversion into bioplastics. Period: 2025-2028
ACCIONA CONSTRUCCION (Spain)	Collaboration in the SUN-DT project for the smart use of new tools in CSP plants. Period: 2025-2028
Advanced Energy Technologies (Greece)	Cooperation in the NIMPHEA project for the sustainability analysis of fuel cells in aviation. Period: 2023-2026
AIT Austrian Institute of Technology GmbH (Austria)	Cooperation in the HVDC4ISLANDS project for the development of HVDC and hybrid DC/AC technologies for reconfigurable energy islands. Period: 2024-2027
Ariema Energía y Medioambiente (Spain)	Collaboration on the MAD VUELA SOSTENIBLE project for the development of an innovation hub for the production of sustainable aviation fuels (SAF). Period: 2024-2027
Arpa (Spain)	Coordinator of NOMAD project, cooperation for the development of energy storage technologies for military deployments in forward operating bases. Period: 2022-2027
AVL List GmbH (Austria)	Cooperation in the GUESS-WHY project for the development of guidelines for safe and sustainable-by-design systems based on renewable energy. Period: 2025-2027
Bio base Europe Pilot Plant (Belgium)	Cooperation in the YAF project for the scale-up of processes for microbial oils production. Period: 2023-2027
Canal Isabel II (Spain)	Collaboration on the noPFAS project for the design of multifunctional porous materials for the removal of perfluoroalkyl and polyfluoroalkyl substances (PFAS) in drinking water.. Period: 2025-2028
ecoinvent Association (Switzerland)	Collaboration in ecoinvent's data validation service for sustainability studies. Period: 2024-2026
ECONWARD (Spain)	Collaboration in the use of biopulp for the production of sustainable fuels. Period: 2025-2026
Engionic Femto Gratings GmbH (Germany)	Cooperation in the ASTERIX-CAESar project for the development of optical sensors in solar receivers. Period: 2023-2027
Evoenzyme (Spain)	Collaboration on the MAD VUELA SOSTENIBLE project for the development of an innovation hub for the production of sustainable aviation fuels (SAF). Period: 2024-2027
Fronius International GmbH (Austria)	Cooperation in the HVDC4ISLANDS project for the development of HVDC and hybrid DC/AC technologies for reconfigurable energy islands. Period: 2024-2027
Huawei Technologies Duesseldorf (Germany)	Collaboration in Power Quality improvement in PV and ESS Plants. Period: 2025-2027
Innovation Tree (Spain)	Cooperation within the SACaFiRe project for technical advice for carbon fiber recycling sustainability analysis. Period: 2023-2027
Lantania Aguas (Spain)	Coordinator of HYLIOS project for the production of green hydrogen from waste water. Period: 2023-2026
Mercedes Benz España (Spain)	Cooperation in technical advice on the determination of contaminants in paints. Period: 2018-2026
Micro Electrochemical Technologies (Spain)	Cooperation in activities related to the SHEAR industrial doctorate project and the BASSERE project for the development of an energy storage system based on a metal-free hybrid supercapacitor. Period: 2023-2027
MOEVE (Spain)	Cooperation in the YAF project for the catalytic conversion of microbial lipids for aviation fuels. Period: 2023-2027
Odqa Renewable Energy Technologies (United Kingdom)	Cooperation in the Sharp-sCO2 project for the design, optimization and prototyping of solar receivers. Period: 2022-2025
Repsol (Spain)	Coordinator of the MAD VUELA SOSTENIBLE project for the development of an innovation hub for the production of sustainable aviation fuels (SAF). Period: 2024-2027
RTR Energía (Spain)	Coordinator of the Dynamic-Compensation project for the development of electric power systems. Period: 2023-2026

Safran Power Units (France)	Cooperation in the NIMPHEA project for the sustainability analysis of fuel cells in aviation. Period: 2023-2026
Securitas Direct España / ESML / VERISURE (Spain)	Cooperation in battery testing activities for wireless devices. Period: 2019-2026
SINTEF Energi AS (Norway)	Cooperation in the HVDC4ISLANDS project for the development of HVDC and hybrid DC/AC technologies for reconfigurable energy islands and the GUESS-WHY project for the development of guidelines for safe and sustainable-by-design systems based on renewable energy. Period: 2024-2027
SOLATOM (Spain)	Collaboration on the design of an electrolyzer for fuel generation powered by concentrated solar steam. Period: 2025-2026
SPECS Surface Nano Analysis (Germany)	Colaboración en el BETTERXPS project for the improvement of in-situ XPS measurements. Period: 2023-2027
Stargate Hydrogen Solutions (Estonia)	Cooperation in the GUESS-WHY project for the development of guidelines for safe and sustainable-by-design systems based on renewable energy. Period: 2025-2027
Synhelion (Switzerland)	Cooperation in the SUN-to-LIQUID II project for the synthesis of solar fuels from thermochemical processes. Period: 2023-2027
Unbound Potential GmbH (Germany)	Cooperation in technology transfer activities in advanced flow battery technology. Period: 2023-2026

3.5.6. Scientific publications and conferences

Indexed scientific publications in the Scopus database are shown in Figure 9. Although the data for 2026 are provisional, a significant decrease in the number of publications is expected compared to 2025, which saw a record number of publications. Among the various causes of this decline, the intense dedication of research staff, particularly senior researchers, to the execution of the large number of active projects during 2025 (106) stands out.

Currently, an analysis is being carried out on the different factors that can condition scientific productivity and corrective measures are beginning to be taken, so it is expected that in 2026 a value of this indicator similar to that of previous years can be recovered (at least 110 indexed publications).

We will also continue to present papers at scientific conferences, preferably international ones.

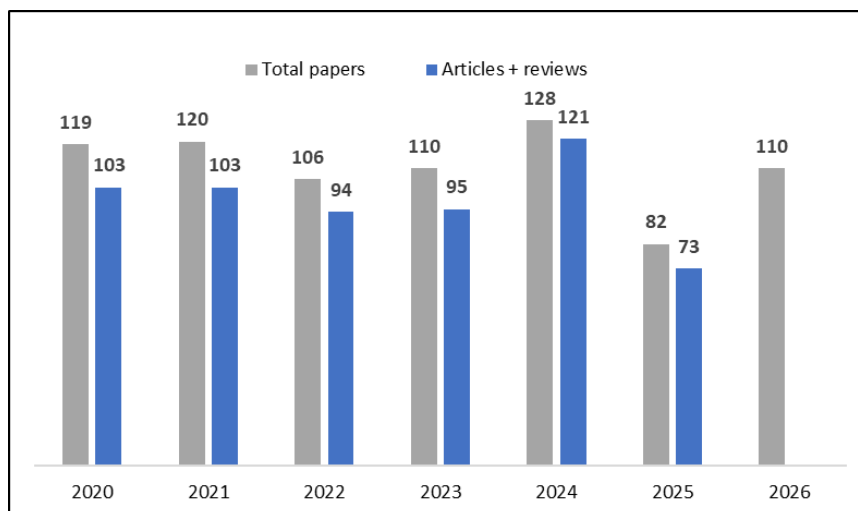


Figure 9. Evolution of the number of publications in indexed scientific journals in the period 2020-2026 (Scopus) (the data for the years 2025 and 2026 are provisional).

3.5.7. Communication and science outreach activities

For 2026, the plan is to continue the communication activities described, improving them as a whole with the ultimate goal of strengthening the Foundation's visibility, reinforcing its image as a leader in the sector, and attracting talent. Therefore, the following activities are planned:

- Design of a new institutional website.

- Promoting the dissemination of scientific results to improve the social impact of research through the continuous preparation of news and press releases and coordination with the press and media.
- Layout, distribution and impact analysis of the Institute's external and internal newsletter .
- Design of communication and dissemination materials in different formats and channels.
- Monitoring of key performance indicators (KPIs) using Google Analytics , press clipping , and writing of periodic reports.
- Collaboration in the design and organization of the institute's events or those in which it participates.
- Continuous monitoring of the public on the institutional profiles of the social networks used.

Regarding science outreach activities, IMDEA Energy will maintain its presence and participation in energy-related events such as seminars, symposia, and fairs next year, as well as events aimed at young people, such as the International Day of Women and Girls in Science, Earth Day, European Researchers' Night, Science Week, and the Madrid Es Ciencia Fair. In addition, Environmental Education Day will be held in January.

On the other hand, as in previous years, the Foundation will propose the organization of conferences, workshops and round tables with the participation of companies, associations and representative platforms of the business environment.

3.5.8. Networking

Within the framework of the strategy to foster and increase external collaborations, as well as to further promote the institute's external visibility, participation in various national and international networks, associations, and platforms is considered a fundamental instrument. IMDEA Energy's efforts during 2026 will focus on continuing its active participation in the networks, associations, and technology platforms listed in Table 4.

Table 4. Participation in networks, associations and technological platforms in the year 2026.

National organizations	International organizations
Severo Ochoa / María de Maeztu Center Association (SOMMa)	HER - Hydrogen Europe Research
Alliance for Energy Research and Innovation (ALINNE)	EERA - European Energy Research Alliance
Spanish Hydrogen Association (AeH2)	European Clean Hydrogen Alliance
Spanish Biogas Association (AEBIG)	A.SPIRE - Processes4Planet Partnership
Iberian Association of Photocatalysis (AIF)	ISES - International Solar Energy Society
Spanish Association of Solar Energy (AEDES)	International Energy Agency - SolarPaces - Solar Power and Chemical Energy Systems
Madrid World Capital of Engineering, Construction and Architecture Association (Madrid WCC)	BEPA - Batteries European Partnership
Iberian Association for Natural Gas in Mobility (GASNAM)	UNEP Life Cycle Initiative
Technological Innovation and Talent Cluster in Semiconductors of the Community of Madrid	European Association of Sciences Academies (EASAC)
Cluster in Biomedical Technologies and Biotechnology of the Community of Madrid	IAM-I, The Innovative Advanced Materials Initiative
Cluster in Space Technologies of the Community of Madrid	
Spanish Chemical Industry Business Federation (FEIQUE)	
Spanish Zeolite Group GEZ (Spanish Society of Catalysis)	
Madrid Network	
Madrid Business Forum	
Spanish Hydrogen Technology Platform (PTEH2)	
Concentrated Solar Power Technology Platform	
Spanish Technological Platform for Biomass (BIOPLAT).	
Spanish Technological Platform for Energy Efficiency (PTE-EE)	
Spanish Platform for Electrical Networks (FutuRed)	
Spanish Technological Platform for CO2 (PTECO2)	
Spanish Technological Platform for Automotive and Mobility (Move2future)	
Smart Living Technology Platform	

Energy Storage Technology and Innovation Platform (BATTERYPLAT)	
Interdisciplinary platform for sustainable plastics for a circular economy (SUSPLAST)	
Spanish Railway Technology Platform (PTFE)	
Sustainable Chemistry Technology Platform (SUSCHEM)	
Spanish Photovoltaic Technology Platform (FOTOPLAT)	
Carbon-neutral gas technology platform for transport (NEUTRAL TRANSPORT)	
Advanced Materials and Nanomaterials Technology Platform (MATERPLAT)	
ENERTIC Platform	
Protemosolar	
Spanish Life Cycle Assessment Network.	
Network of Excellence in Environmental and Energy Applications of Electrochemical Technology (E3TECH)	
Thematic Network on Ionic Systems for Energy Sustainability (SISE)	
Thematic Network on Biotechnology of Lignocellulosic Materials (LIGNOCEL)	
Spanish Hydrogen Network (SHYNE)	

4. BUDGET FRAMEWORK 2026

4.1. Budget 2026

The following table presents the 2026 budget of the IMDEA Energy Foundation, detailing the main items of expenditure, investments and income.

IMDEA ENERGY 2026 BUDGET			
OPERATING EXPENSES	2026	OPERATING INCOME	2026
1. Personnel	7.555.427 €	1. Own activity income	10.632.594 €
2. Consumable and operational expenses	2.014.744 €	Comunidad de Madrid 2026 transfer	4.031.684 €
2.a) R&D expenses	1.188.199 €	R&D funds	6.450.910 €
2.b) General functioning expenses	826.545 €	Financial income	150.000 €
• R&D professional partnerships	77.000 €		
• General management services and IT services subcontracting	227.251 €		
• Office and computer consumables	22.000 €		
• Travel expenses	222.381 €		
• Board of Trustees and Scientific Comitee meetings	21.500 €		
• Dissemination activities	38.584 €		
• Bibliographic resources / Associations fees	139.500 €		
• Communications services (voice, data, courier)	40.384 €		
• Others (taxes, insurance)	37.945 €		
3. Building expenses	1.062.423 €		
• Maintenance and conservation	805.119 €		
• Water, electricity and gas	257.304 €		
TOTAL OPERATING EXPENSES	10.632.594 €	TOTAL OPERATING INCOME	10.632.594 €
INVESTMENTS	2026	INVESTMENTS INCOME	2026
Scientific equipment	141.073 €	Comunidad de Madrid 2024 transfer	618.316 €
Works for the adaptation of the bulding spaces	146.496 €	R&D funds	118.356 €
Software and computers	28.757 €		
Loan refund Ministry of Economy and Competitiveness	420.346 €		
TOTAL INVESTMENTS	736.673 €	TOTAL INVESTMENTS INCOME	736.673 €
TOTAL EXPENSES 2026	11.369.266 €	TOTAL INCOME 2026	11.369.266 €

4.2. Estimated expenses and investments

The total amount of expenses and investments planned by the IMDEA Energy Institute for the year 2026 has been estimated at €11,369,266. The main investment expenditure items are as follows:

OPERATING EXPENSES. In 2026, these will represent 93.5% of the Institute's total expenditure, amounting to €10,632,594, distributed among the following items:

- Personnel expenses. A total of €7,555,427 has been projected for personnel expenses in 2026. This amount represents 71% of IMDEA Energía's total projected operating expenses for the coming year.
- Operating expenses. This category includes expenses related to the Institute's R&D activities and other costs necessary for the center's general operation. Its amount, €2,014,744, represents 19% of total operating expenses for 2026.
- Headquarters-related expenses. These expenses include the costs of external services necessary for the maintenance and upkeep of the facilities, cleaning, security and utilities (electricity, water, and gas), among others. An amount of €1,062,423 has been estimated for 2026, representing 10% of total operating expenses.

INVESTMENTS. In 2026, investments will represent 6.5% of the Institute's total expenditure, with a total projected amount of €736,673. These investments include:

- Acquisition of scientific equipment for a total estimated amount of €141,073.
- Works and renovations for a total amount of €146,496.
- Acquisition of computer equipment and software for the amount of €28,757.
- Repayment of the loan to the Community of Madrid: €420,346.

4.2. Estimated income

In 2026, the total amount of income has been estimated in €11,369,266. The main sources of funding for the Institute's activities come from competitive R&D grants, R&D contracts with organizations, and from the nominative transfer of the Comunidad de Madrid.

NOMINATIVE TRANSFER FROM THE COMUNIDAD DE MADRID. The total amount of the Foundation's nominative transfer for the year 2026 will reach €4,650,000. This income will allow to support the following expenses and investments of the Foundation:

Operating expenses: €4,031,684.
Investments: €618,316.

INCOME FROM THE R&D ACTIVITIES. The total amount from the R&D projects, contracts with companies and from the personnel grants for the year 2026 has been estimated in €6,569,266 and will support the following expenses:

Operating expenses: €6,450,910.
Investments: €119,356.

FINANCIAL INCOME. The amount of financial income for the year 2026 that will be used to support expenses for the year is:

Operating expenses: €150,000

Figure 10 shows the evolution in the period 2021 – 2025 of the annual contributions of the nominative transfer received from Comunidad de Madrid and of the R&D external funding executed by IMDEA Energy. The contributions made by the Comunidad de Madrid to IMDEA Energy in the years 2022 and 2023 include both extraordinary, non-consolidable amounts of 269.520 € and 272.000 € euros, respectively, whose objective was to contribute to support the high prices of the energy and the increase of the Foundation's staff salaries. The 2026 nominative transfer from Comunidad de Madrid was increased by €250,000 compared to the previous year 2025.

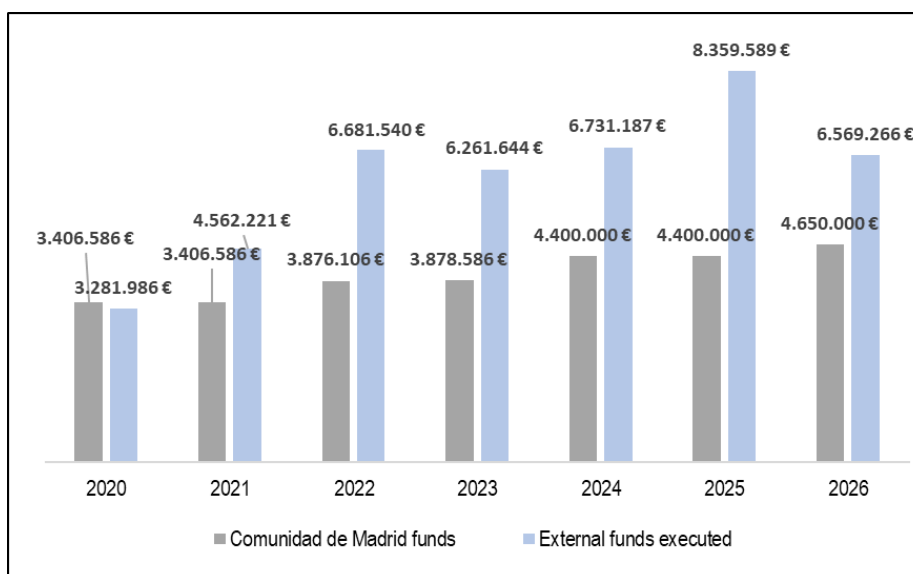


Figure 10. Comparative evolution of the nominal contribution of the Community of Madrid, including extraordinary non-consolidable amounts, and of the external financing executed by IMDEA Energy in the period 2020 – 2026 (the data of the external funds executed for the years 2025 and 2026 are provisional).