03

Innovative Ecosystem

03. Innovative Ecosystem

We promote training and research in innovative and sustainable projects by collaborating with external entities.

3.1. Partnerships

Global Smart Grids Innovation Hub

The Global Smart Grids Innovation Hub is a global innovation and knowledge centre that aims to be a worldwide reference in **smart grids** and will make it possible to respond to the challenges of **energy transition.**

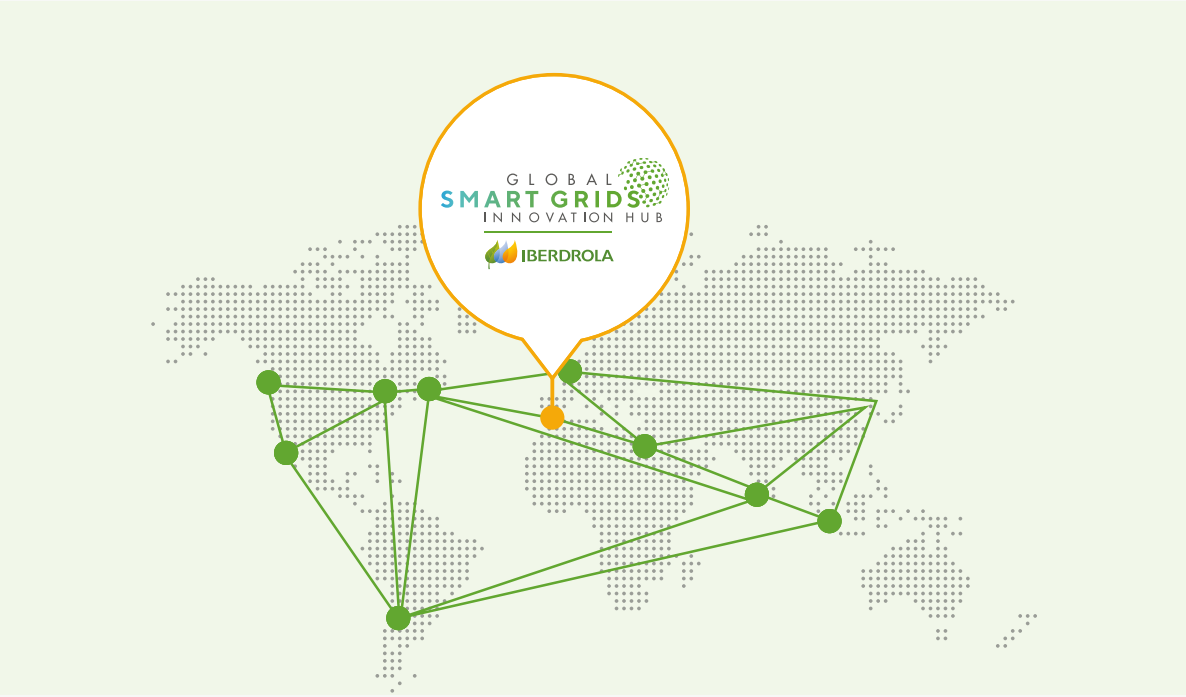
The centre acts as a driving force for innovation, combining the company's technological capacity with that of more than 80 collaborating entities and companies: suppliers, universities, technology centres and start-ups. It also serves to attract strategic suppliers and international talent, thus strengthening the business ecosystem. The hub focuses its activities on countries in Europe, America and the Middle East.

In the first months of the hub, we have registered on-going R&D&I projects for a total investment of **€32 million** in Iberdrola Networks Spain. Furthermore, we have identified more than **120 projects** for their future development with an associated investment of more than **€130 million per year.**

The innovation hub occupies more than 1,000 m2 at the headquarters of Iberdrola's Networks business, located at Larraskitu (Vizcaya).

It has the collaboration of the Provincial Council of Vizcaya, which will facilitate interaction with a totally dynamic, innovative and entrepreneurial ecosystem.

The centre enables us to bring together the innovative potential of more than **200 professionals** in the development of R&D&I projects related to the challenges of the **electricity grids of the future**, among them, greater **digitalisation**, the processing of the **data** which these infrastructures generate and the response, in terms of **robustness and flexibility,** of the electricity grid to new models of consumption, such as **electric mobility and self-consumption.**



Four key pillars

The innovation centre is dedicated to the coordination and training of projects targeting strategic lines, as well as serving as a direct link with the Networks subsidiary (i-DE) to seek opportunities.

GLOBAL

A global centre with international partners where new solutions are developed.

MARKET-ORIENTED

Industrial products that can be installed in electrical distribution networks worldwide.

BASED ON PARTNERSHIPS

A public-private alliance, with funding from the Bizkaia Provincial Council and other collaborations.

ATTRACTING TALENT

Aiming to accelerate collaboration and innovation to attract talent.

Strategic lines

To provide new equipment for network infrastructures to enable the development of digital processes in order to offer the best service to our clients.

Maintain the efficiency of distribution networks by integrating technologies such as artificial intelligence, augmented reality and digital twins into distribution processes.

Include new functionalities in facilities that improve worker safety with the use of robots and drones.

Providing the grid with the connection of new solutions that enable flexible operation and support the electrification of the economy.

Protection of fauna and flora to seek a balance between infrastructure coexistence and environmental sustainability.

Support an innovative technological fabric that helps to increase network resilience and security.

Natural intelligence is necessary. We offer scholarships and PhD programmes to get the best talent.

INTERNATIONAL PARTNERS

IBERDROLA InnovationME
مؤسسة قطر Qatar Foundation
University of Strathclyde Engineering
MIT Massachusetts Institute of Technology
tecnalia Inspiring Business
smarkia
جامعة حمد بن خليفة HAMAD BIN KHALIFA UNIVERSITY
circe
TEXAS A&M UNIVERSITY at QATAR
CATAPULT Energy Systems

The centre has **4 laboratories:**

Smart City Laboratory

The digitisation of the low-voltage grid is the basis for building the **Smart City of the future** and efficiently achieve the goals of **descarbonisation** related to the electrification of energy end-uses, such as urban mobility.

This laboratory is working to develop the new generation of **smart meters and the low voltage network automation** to enhance customer service. Here, we collaborate with electrical manufacturers and electronics development companies to meet our functional requirements, allowing us to stay ahead in order to improve service to customers.

Among the projects undertaken, E-LVIS stands out, which includes the functionalities of the usual Control Centre systems for security analysis of the grid and remote control, applied to urban grids, in order to make the most of the grid's capacity and to be able to connect the new consumptions of electrification and self-consumption at a low cost.

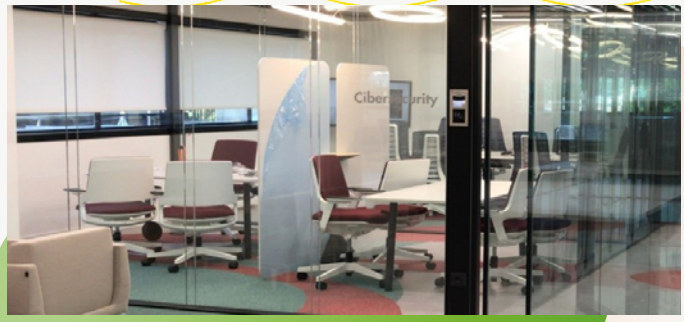
Smart Substation Laboratory

In the Smart Substation laboratory we have developed the new **smart substation**, which consists of the development of an integral substation control system, applying and developing the international standard with manufacturers, which guarantees safety and efficiency in the complete cycle, from design and construction to operation and maintenance.

The new substation is sustainable both in terms of reducing materials, as well as due to its design, which takes into account the ecological footprint, and developments with manufacturers to reduce greenhouse gases that are commonly used for insulation in equipment.

Digital Factory Laboratory

Smart grids complement the digitisation of the grid with the future **Smart Worker**, who will perform field work more safely and efficiently, connected, and with robotised tools. Real-time risk information will be received and robots will be used as ground and aerial substitutes (drones) to carry out operations remotely, avoiding travel and performing the highest-risk jobs.



Cybersecurity Laboratory

Among the projects associated with this laboratory is the **TrueValSec**, a project carried out in a strategic consortium in the field of Cybersecurity with the following aim: to have a thorough understanding of the security mechanisms used at the different levels of communication in the electrical metering infrastructure of the Smart City; to identify the security barriers and weak points to which the power grid communication infrastructure is exposed; to study the techniques and tools to develop prevention and defence mechanisms; and to design and develop SW applications to increase security in the management of energy assets.

Iberdrola Innovation Middle East

Iberdrola Innovation Middle East is a world-leading technological innovation centre - located in the Qatar Science and Technology Park. We launched it in January 2016 to address practical technology challenges related to innovation and digitisation of the energy system. In line with our Group's strategic pillars, it develops innovative digital solutions for Iberdrola's three key business lines (networks, renewable energies and customers). Emerging from its solution development core, the company offers three types of innovation monetisation services: **new business incubation, advanced training and technology advisory services.**

Iberdrola Innovation Middle East maintains strong cooperation programmes with **Qatar's innovation ecosystem**, having signed co-development agreements with the Qatar National Research Fund (QNRF), Qatar University, Hamad Bin Khalifa University, the Texas A&M University of Qatar and the local electricity company (Kahramaa), among other actors in the innovation and energy industry. In addition, these agreements include training and education programmes and the sponsorship of graduate and PhD students.

We signed an agreement with IPA Qatar (Investment Promotion Agency of Qatar) in May 2022 to strengthen our strategic partnership in innovation and advance the digitalisation of the global power sector. The agreement, signed in Madrid during the visit to Spain of His Highness Sheikh Tamim bin Hamad Al Thani, Emir of Qatar, will allow us to expand our activities in the centre, with the aim of boosting the digitalisation of the electricity system in Qatar.

Sheikh Ali Alwaleed Al Thani, CEO of IPA Qatar and Santiago Bañales López, Executive Director of Iberdrola Innovation Middle East signing the agreement in the presence of the Minister of Commerce and Industry and Chairman of IPA Qatar H E Sheikh Mohammed bin Hamad bin Qassim Al Abdullah Al Thani, José Ignacio S Galán, Chairman and CEO of Iberdrola and María Reyes Maroto Illera, Minister of Industry of Spain, May 2022

Development of Innovative Solutions Programme

Iberdrola Innovation Middle East's core business is to identify and solve key challenges related to the digitisation of the energy system. The programme is built around four main themes, covering our three business lines and different digital technology disciplines:

1. **Design and control of electrical systems:** ensuring effective and efficient integration of renewable energies into transmission and distribution grids. Development projects include: optimal sizing of hybrid assets (renewable energies plus storage), design of converters, advanced control for ancillary services, stability analysis of transmission grids under high penetration of renewable energy generation, etc.
2. **Smart distribution grids:** make the distribution grids the key element integrating the electricity system to achieve the zero net emissions targets. Product and service developments include battery-free multivariable smart sensors, performance improvement of last mile telecommunications (in particular power line communications), hardware virtualisation of transformer substations, etc.
3. **Energy asset data analysis:** collection, processing, analysis and visualisation of large time series of operational data from renewable generation units, network assets and customers for continuous improvement of planning, operations and maintenance processes. Product and service development includes fault prediction for wind turbines, discrepancy assessment in the generation of renewable energy, telecommunication fault prediction system, device detection (i.e. electric vehicles, heat pumps, etc.). from smart meter data, etc.
4. **Energy Management at the edge:** enabling the participation of the new energy customer in the energy market. Product and service development includes automation of energy efficiency in the built environment, adaptive perimeter computing applied to energy management, cloud computing and home management systems driven by machine learning. renovável, etc.

Services

At the centre we offer innovative services to energy producers and customers, helping them to improve network efficiency and reliability. The aim is to achieve cleaner and smarter energy consumption worldwide.

Energy services: We offer innovative solutions to our customers to **minimise their consumption and contribute to the decarbonisation and diversification of the economy.** We carry out audits and implement energy management systems and efficiency measures and savings certification, using Big Data to learn about consumption habits and avoid wasting energy. In addition, **we design and implement complete renewable energy systems at microgrid level**, both stand-alone and connected to the grid.

Training services: **We provide training services to promote a** better understanding of digital energy **and facilitate** the transition to a digitised grid. The courses we offer are aimed at professionals and engineers working in the energy or ICT sector who are looking to update and expand their practical skills to respond to the latest market demands. We customise training to meet the requirements and the knowledge level of each company.

Consultancy services

- **Advanced metering infrastructure:** at the centre we draw on our extensive experience, with more than 13 million installations worldwide, to provide technical advice to Middle Eastern energy companies at all stages of the smart grid implementation process.
- **Microgrids design:** we provide technical advice to both distribution system operators and large energy customers who want to invest in or configure microgrids based on clean energy.
- Energy system modelling: **we provide planning services to energy companies by analysing the perspectives of the technology and developing advanced energy system models.** The aim is to assess the potential impact of technology trends in the short, medium and long term.

Business model: its employees, its laboratory and its partners

Iberdrola Innovation Middle East is built on three pillars: its employees, its laboratory and its partners. Moreover, being part of the Iberdrola group gives them access to the latest technological and industrial advances and know-how at all times.

The employees

The centre's employees are a multicultural group of people with extensive experience in industrial deployment and applied R&D. Its diverse group of engineers, researchers and professionals covers the key areas of knowledge needed to digitise the electricity system: electrical engineering, computer science, artificial intelligence and data analysis techniques.

The Facilities

Iberdrola Innovation Middle East's laboratory enables us to turn research and development into innovation and market deployment. The integration of our hybrid hardware power electronics system emulator into the cycle, smart meter testing, energy efficiency prototyping and high-performance computer cluster, allows us to test new products and services prior to actual implementation in business operations and at the customer.

Partners

Iberdrola Innovation Middle East partners with universities, technology institutes, start-ups and local and international industrial companies that complement our knowledge and technological resources to tackle larger and more challenging projects. The list of partners is continuously growing:

Iberdrola Training and Innovation Campus

A global centre for knowledge,innovation and employability inaugurated by Their Majesties King Felipe and Queen Letizia in 2021.

Our Innovation and Training Campus comprises a 180,000 m2 complex with state-of-the-art facilities in San Agustín del Guadalix (Madrid), made up of a set of functional, sustainable and independent buildings that are interrelated by means of an upper covering that skims over the buildings.

This covering or canopy generates an interior bioclimate that allows **the production of hot and cold water for cooling and heating of buildings to be reduced** by minimising the thermal load generated on the façades. This also means a significant reduction in CO2 emissions into the atmosphere.

The Campus also has measures in place to **reduce water consumption.** A system has been established to collect rainwater, which will be used for watering and hosing the complex, as well as a system that **collects and treats the grey water from the hall of residence for its sanitary use.** It also has a **100 kW photovoltaic panel** installation for self-consumption and a solar thermal system for the production of domestic hot water with a surface area of 400 m2, as well as **60 charging points for electric vehicles.**

We have implemented other sustainability and energy efficiency measures in the buildings, such as the careful selection of plant species, **high-efficiency lighting systems** that enable a 20% reduction in consumption and sanitary

appliances that reduce drinking water consumption by around 50% compared to conventional devices.

These innovations in sustainability have earned the Campus LEED Gold 2009 certification from the U.S. Green Building Council. The Leadership in Energy and Environmental Design (LEED) certification is the **world's most widely used green building rating system** and recognises buildings with high levels of health, efficiency and cost savings.

The Campus facilities include classrooms and workshops to contribute to the professional development of young people in the electricity sector. Nearly 13,000 people receive development training in its classrooms annually. One of the initiatives carried out at the complex is the Youth Plan - Professionals of the Future in the Electricity Sector, aimed at students and graduates of vocational training in Spain.

Specifically, the Iberdrola Campus has the following training workshops:

Hydro energy

- Hydropower plant workshop: recreation of a control room including the most important and critical elements of the power plants (hydraulic unit, distributor, controls, protections).
- Lifting and assembly workshop: Movement of loads using cranes located in the workshop itself. Assembly, disassembly and service of the different elements of the power plant.

Wind and solar energy

- Renewable energy workshop: wind turbine maintenance simulators and a solar energy plant with energy storage in batteries.

Substation workshop

- Fully functional 66kV outdoor substation interconnected to a control room for all types of training activities.
- Circuit diagrams workshop: control and protection elements of the substations and their elements.

Electricity grids

- Transformer stations workshop.
- Air transport workshop: simulators for training in work at height on electricity pylons, as well as a recreation of the components of an overhead power line for assembly, operation and maintenance work.

Technological training area

- Measurement workshop: training on various devices for measuring customer wiring. Fraud detection, electrical measurement, etc.
- STAR workshop: Transformer station simulators so that attendees can work on STAR technology (smart grids).

Other training areas

- Risk prevention workshop: training in confined spaces, safety in work at heights and driving simulators for both 4x4 vehicles and utility vehicles.
- Customer workshop: recreation of a home to showcase and test customer-focused smart solutions.

Centre of excellence in AI

We are currently in the process of creating an AI Centre of Excellence at the Iberdrola Campus in Madrid as part of the IA4TES project (Artificial Intelligence for Sustainable Energy Transition), whose main goal will be to train and attract talent, generate alliances and carry out proofs of concept of highly disruptive technologies in the area of AI in energy.

Smart Mobility Lab

Bilbao is home to our electric mobility laboratory, equipped with the latest electric vehicle charging technologies. The laboratory has around 30 charging points (CP) of different powers, serving as a test centre for the CP manufacturers and as support for the after-sales service, as it investigates the incidents found in operational equipment, replicating them and providing solutions remotely.

Vizcaya Supplier Innovation Programme

In July 2017, we launched the Vizcaya Supplier Innovation Programme, the purpose of which is to finance the development of projects by suppliers in Vizcaya (products and services of interest to Iberdrola) and to reinforce the image of a company that is a driving force in the industrial fabric.

The tax incentive in Vizcaya known as **"Article 64bis" of the provincial income tax law**, encourages private investment in innovative projects, allowing a third party acting as an investor in an R&D project to obtain tax deductions for its investment. In this way, we provide non-refundable funds to research companies, obtaining tax benefits in return.

So far we have financed 12 projects with different companies: Afesa, Ingeteam (2), Ormazabal (5), Arteche (2), ZIV and ATTEN2.

3.2. Universities Programme

Iberdrola U, the Iberdrola Universities Programme, aims to support the transfer of knowledge, talent and social contribution.

It strengthens the link between universities and companies with the goal of teaching young talents the skills to develop **innovative solutions to the energy sector's challenges.**

Through various global agreements and other collaborations with universities, Iberdrola U currently connects 500,000 members: students, scholarship holders, entrepreneurs, professors, researchers and Iberdrola employees form a network that promotes training, entrepreneurship and research.

UNITED STATES

Massachusetts Institute of Technology (MIT)

Iberdrola and Avangrid have signed a Chair in the area of "Power Systems engineering" to promote research and training in electrical systems.

Within the framework of the Chair, we have carried out 12 R&D projects with 8 Iberdrola businesses in 5 countries (Spain, UK, USA, Brazil and Qatar). Of particular note is the R&D project on predictive maintenance using machine learning technology. The results of this project make it possible to optimise decision-making on the maintenance of renewable assets through short- and

medium-term forecasts using a centralised platform and also have a direct impact on reducing operating costs.

We are members of the MIT Future Energy Systems Center, an industry research consortium providing insights on how best to navigate the energy transition based on multisectoral analyses of emerging technologies, changing policies, and evolving economics. We are also part of the Center of Energy and Environmental Policy Research (CEEPR) which studies of a wide range of policy issues related to energy supply, energy demand, and the environment.

Yale University

Iberdrola together with Avangrid and Yale University have signed an agreement focused on research and education for the future of energy.

We have jointly carried out different R&D projects, including a study on the benefits of grid electricity compared to off-grid electrification alternatives, as well as pilot tests for Blockchain, solar energy and storage.

In addition, students from Yale University have participated in Avangrid's Innovation Forum with the aim of developing solutions to the toughest challenges in the energy sector.

Columbia University

Columbia University

In the framework of COP 26, Iberdrola and Columbia University join forces to address the steps companies have taken to integrate the goals of the Paris Agreement into their corporate purpose.

We have participated in the global and virtual conference "Business alignment with the Paris Agreement: from ambition to action" at Columbia University prior to COP26, as well as in the COP26 held in Glasgow (UK).

The University of New Mexico (UNM)

King Felipe VI Chair in Information and Related Technologies.

The aim of this chair created in 2000 by the then Prince and Princess of Asturias at the University of New Mexico (UNM) is to advance knowledge in specific areas of science, information technology and energy, preferably in smart grids, alternative and renewable energies.

SPAIN

Comillas Pontifical University

We have signed the Energy and Innovation Chair with the Comillas Pontifical University, whose objective is to carry out research, innovation and training activities in those fields of knowledge that are of strategic interest to our company.

Within this framework, research projects have been carried out, such as the assessment of electricity grid needs for the energy transition and on the expansion and operation of the system in the 2030-2050 horizon, as well as R&D projects. The aim of one of these is to identify how, based on the flexibility capacities of generation, demand and the distribution grid, we can achieve a 100% renewable energy system and a highly electrified society.

We also promote innovative entrepreneurship initiatives with the students of the Comillas Pontifical University through its sponsorship of the "ISC Racing Team" electric racing team, a project that we have supported since its inception and which each year brings together more than 80 young people who compete internationally with two electric prototypes; we also collaborate closely with the university to promote entrepreneurship among young people with actions such as the "Comillas Emprende" competition, awarding the prize for the best innovative initiative in the energy sector.

University of Salamanca

The main lines of research of the Chair are climate change and the decarbonisation of homes and cities.

Regarding R&D projects, it is worth highlighting the technical study we are carrying out with the USAL on the analysis of the feasibility of the electrification of the urban bus fleet, as well as projects related to the protection of biodiversity, the aim of which is to prevent the loss of birds of prey in wind farms. One of the projects has been carried out in Cadiz with the imperial eagle and the second in Albacete with vultures and other birds of prey.

In the area of entrepreneurship, Iberdrola has sponsored the European Contest for Young Scientists, a competition that encourages young Europeans to get involved in science and embark on a career in research, and several editions of Start-up Olé, a large entrepreneurial event that connects start-ups and technological-digital talent with companies, investors, accelerators, universities, public administrations, and the media.

Polytechnic University of Madrid

Iberdrola-UPM Chair for Sustainable Development Goals.

We have joined forces with the Polytechnic University of Madrid to address the challenges of the international sustainability agenda.

Of particular note is the project on models and scenarios for the mass deployment of electric cookers to promote access to sustainable energy in low- and middle-income countries, thus complying with the Sustainable Development Goals.

In addition, we have participated in numerous training and dissemination events such as "Connecting Women" and the seminar on "Research: key to accelerating the energy transformation".

University of the Basque Country (UPV)

We have participated in the international MORE Master's degree - Master in Offshore Renewable Energy of the UPV, the conference "Decarbonisation of heavy transport: an opportunity for industry in the Basque Country" organised by the School of Engineers of Bilbao-UPV and we have sponsored the Science Week of the University of the Basque Country.

In addition, the UPV is a member of Iberdrola's smart grid centre of excellence located in Bilbao, where the challenges of the energy transition will be addressed.

MEXICO

Instituto Tecnológico de Monterrey

We have signed a Chair with the TEC that includes specialised training activities, entrepreneurship from the training action itself, and the development of R&D&I projects.

As an R&D project, we can highlight the study, development and implementation of a digital tool to improve response time in the search for electrical faults.

In addition, we have carried out a collaboration between Iberdrola, TEC and the Guggenheim Museum to participate in the Norman Foster Foundation's Art of Motion exhibition.

BRAZIL

- We have signed a collaboration agreement with the Federal University of Rio de Janeiro to carry out the R&D project for the deployment of smart grids in Brazilian cities.
- In addition, we have carried out numerous entrepreneurship initiatives through the Hackathon modality with the Federal University of Pernambuco, the Federal University of Rio Grande do Norte and the University of Sao Paulo.

UK

University of Strachclyde

We have entered into a series of agreements and collaborations with Strathclyde University **to address certain challenges in the energy sector and to develop R&D projects:**

- ScottishPower Chair in Smart Grid Technology.
- Technology Innovation Centre (TIC).
- Power Networks Demonstration Centre (PNDC).

Collaborative and funded innovation projects:

- AGILE - Aggregators as digital intermediaries in local electricity markets; modelling the cost sharing of grid improvements with electric vehicles and the value of interconnection in the evolving EU electricity system.
- NEUPA - Grid space, engineering improvements and public acceptance.

QATAR

Hamad Bin Khalifa University

In collaboration with the university, we have developed numerous R&D projects related to the security and reliability of smart grids: Electric Grid Failures, DER Hosting Capacity Analysis for Distribution Networks...

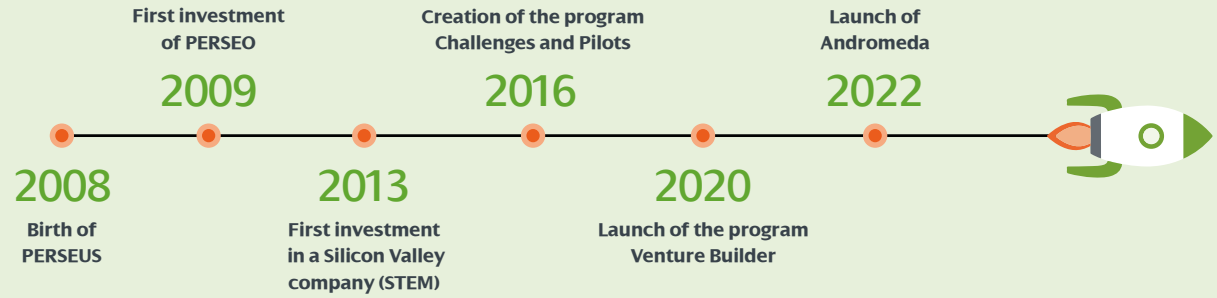
Qatar University

We have an agreement with Qatar University to undertake joint scientific, academic and research initiatives, including the training and co-funding of postgraduate and PhD research students.

3.3. PERSEO International Start-ups Programme

More than 15 years committed to start-ups and business innovation as a brand value.

History of PERSEO



With Iberdrola's start-ups programme - PERSEO - we aim to facilitate the Group's access to the technologies of the future while promoting the development of a global ecosystem of start-ups in the electricity sector with a focus on sustainability. for this, we have invested €125 million through our portfolio of investments in start-ups, our PERSEO Venture Builder unit, pilot projects and the launch of the Iberdrola Start-up Challenge.

- +€125 million investment in start-ups: 10 companies in the portfolio.
- Challenges - Open Innovation Tool: 10 challenges launched per year | +500 proposals received each year.
- +7,500 start-ups in our ecosystem: increasing by 300 per year.
- Pilot projects: Access to technology in real cases | +25 real pilot projects per year.
- Andormeda Sustainable Tech Fund: First large technology fund for energy transition |€300 million to invest in scale-ups.

Objectives of the PERSEO Start-Ups Programme

PERSEO
IBERDROLA ventures

a. **Early identification of key trends** for the future of the company.
b. **Encouraging an innovative**, entrepreneurial culture.
c. **Access to disruptive technologies** and business models.
d. **Supporting industrial sectors** with high growth potential and boosting economic and social revitalisation.

Strategic Sectors

SMART SOLUTIONS FOR DOMESTIC, COMMERCIAL AND INDUSTRIAL CUSTOMERS

- Devices for smart buildings/homes.
- Energy management platforms.
- Tools for customer loyalty.
- Electric heat, etc.

TECHNOLOGIES FOR THE INTEGRATION OF RENEWABLE ENERGIES

- Flexibility platforms.
- Energy storage.

DISTRIBUTED ENERGY RESOURCE MANAGEMENT (DERMS)

- Technologies for battery control.
- Solar.
- Electric heat.

ELECTRIC MOBILITY SOLUTIONS

- Charging infrastructure.
- Mobility Platform.

SOLUTIONS FOR THE ELECTRICITY GRID OF THE FUTURE

- Micro-grids.
- HVDC.
- Smart Grid Technologies.
- Advanced automation.
- Technologies for network resilience.
- Reliability and efficiency, etc.

ADVANCED TECHNOLOGIES FOR OPERATION AND MAINTENANCE

- Data-based platforms.
- Drones.
- Sensors.
- Robots.
- Diagnosis.
- Online monitoring.
- Augmented Reality, etc.

Investment portfolio

PERSEO's technology investment portfolio is composed of start-up companies that develop innovative technologies and business models with a high social impact in the field of energy.

A global commitment

+€125 million invested

€200 million to invest

10 start-ups in the portfolio

More than 15 years of work in search of the 'unicorns' that will revolutionise tomorrow's sector have enabled our project to consolidate its position as the benchmark corporate start-ups programme in the energy sector. Milestones such as the **IPO** in 2021 of the start-ups invested by PERSEO: **Wallbox.**

AQUI TU REFORMA
BALANTIA ENERGY TRANSITION PARTNERS
barbara
CO2 REVOLUTION
innowatts
morgansolar
Voltbras
wallbox

AQUÍ TU REFORMA

Energy efficiency for more sustainable homes

BALANTIA

Digital solutions to improve energy efficiency

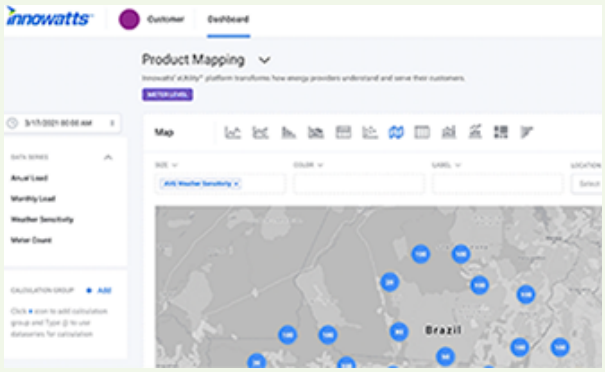
BARBARA IOT

An operating system to connect and protect and protect industrial equipment

CO2 REVOLUTION

A comprehensive reforestation model supported by the latest technology

INNOWATTS



Data analysis using AI to optimise and optimise and improve customer service

MORGAN SOLAR

Technology to improve the efficiency and durability of photovoltaic solutions

VOLTBRAS

Advanced and intelligent management for electric vehicle charging

WALLBOX

Charging solutions for vehicles

During 2022, together with the ICO Next TECH fund and Nortia Capital, we have partnered with Seaya to launch **Andromeda**, the first large technology fund to accelerate energy transition and sustainability.

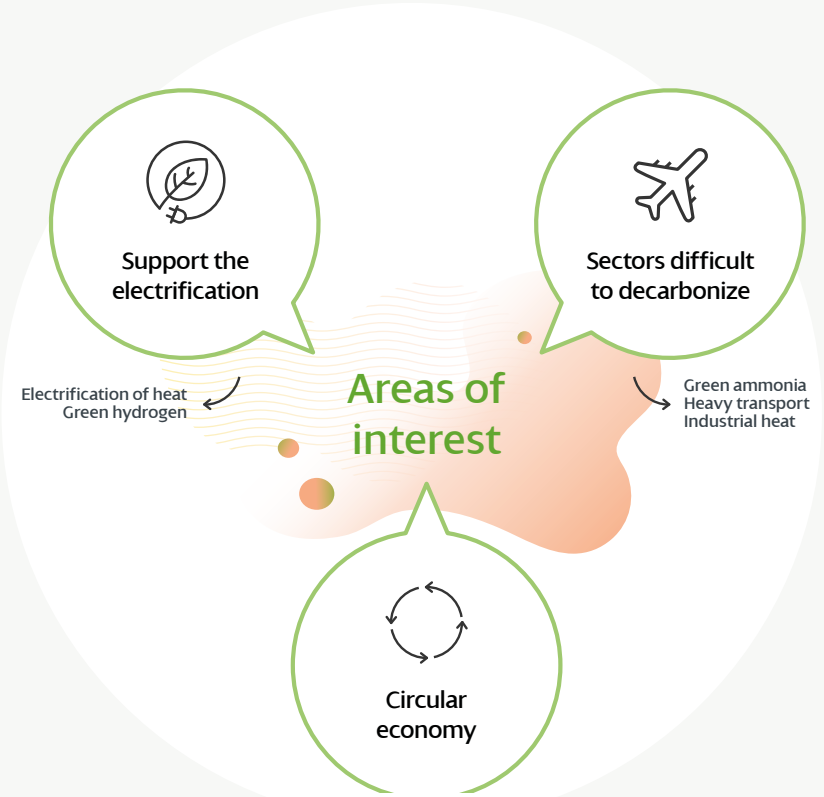
The fund, which has a size of **€300 million, will invest in European scale-*upsrelated*)** to sustainability, energy transition, electrification of the economy, and other areas such as sustainable agriculture and the circular economy.

It is the first major technology venture capital fund to have specific sustainability goals in line with Article 9 of the EU Regulation, with clear and measurable environmental, sustainability and governance criteria.

Public participation in Andromeda is articulated through the Next Tech Fund, with an investment of up to €100 million. This new operation is part of the drive for public-private collaboration in innovative digital projects in high-impact technologies and the development of scale-ups that generate quality employment, as envisaged in the Government's Recovery, Transformation and Resilience Plan.

PERSEO Venture Builder

The PERSEO Venture Builder unit was launched to create new business models that contribute to electrification in sectors that are difficult to decarbonise.



MAIN INITIATIVES IN THE FRAMEWORK OF PERSEO VENTURE BUILDER

The PERSEO Venture Builder unit was launched to create new business models that contribute to electrification in sectors that are difficult to decarbonise, with a budget of €40 million.

ENERGYLOOP

Together with FCC Ámbito, a subsidiary of FCC Servicios Medio Ambiente, we launched EnergyLOOP to lead the recycling of components from renewable facilities. The initial goal is to recover the components of wind turbine blades, which are mostly glass and carbon fibres and resins for reuse in sectors such as the energy, aerospace, automotive, textile, chemical and construction industries.

Alianza NETZERO Mar

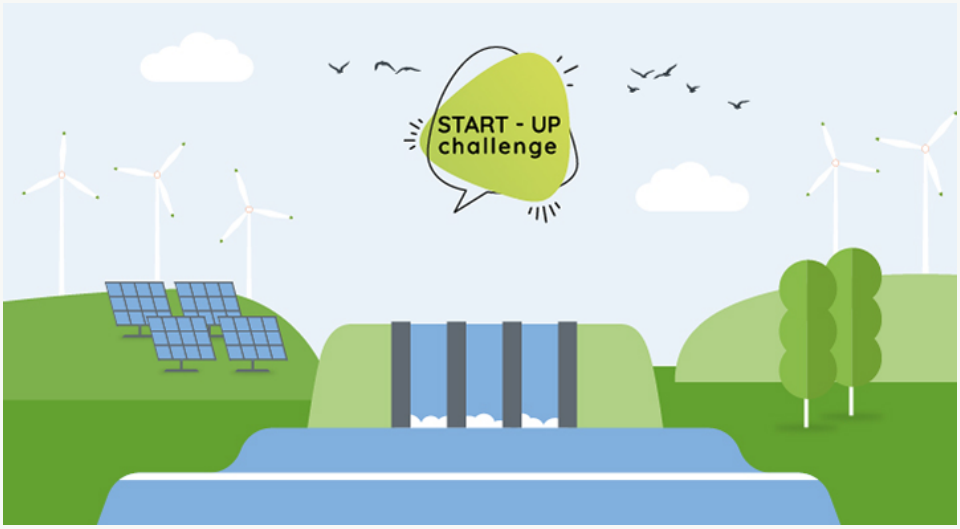
We participate in the Net-Zero MAR Alliance, which pursues the decarbonisation and electrification of the Spanish maritime sector with the aim of becoming a leader in Europe. It is a collaborative, non-profit platform focused on the electrification and decarbonisation of maritime infrastructures. The electrification of port infrastructures and the use of alternative fuels are two of the main pillars that will support the future decarbonisation of the maritime industry.

BASQUEVOLT tech by CIC energiGUNE

We are part of the consortium of investors of the Basque technology company Basquevolt, whose aim is the sustainable development of the best materials and cells for batteries, which will make possible the massive implementation of electric transport, stationary energy storage -including hybridisation with hydrogen-gas systems- and advanced portable devices. This project has an investment of more than €700 million and the prospect of generating more than 800 direct jobs.

Start Up Challenges

PERSEO launches an average of ten challenges per year, aimed at emerging technology companies from around the world, with the aim of receiving proposals with **innovative solutions** to improve the company's operations, increasing our competitiveness and positioning us in new markets, while minimising our environmental impact.



The latest start-up challenges launched have been based on the search for innovative solutions to electrify the countryside and promote renewable energies in rural areas, as well as on the search for new materials, designs and methodologies for electrical substations and very high voltage lines.

For example, the 'Start-up Challenge': Planning electric vehicle fleets, in which Iberdrola selected the Spanish company SwitchFleet and the US subsidiary of Hitachi Energy as winners. Both start-ups have presented two solutions to **develop a tool that can help fleet operators assess the feasibility, costs and benefits of using electric solutions** in their fleets, and which is available to customers on the company's website.

LIGHT TRANSPORT

The Spanish company SwitchFleet has developed a tool that will enable our Smart Mobility team to advise our customers on the transition to passenger car and light van fleets, as well as the sizing the corresponding charging infrastructure, both depending on the type of vehicle use by the customer.

HEAVY TRANSPORT

Hitachi Energy will develop a tool to enable the sizing of road transport fleets (mainly buses and trucks) focused on the replacement of the existing fleet and the analysis of the necessary charging infrastructure in collaboration with Avangrid.

Pilot projects

In addition to the challenges, and sometimes as part of the award to the winning start-ups, at PERSEO **we carry out 25 pilot projects per yea**r to test the new technologies and business models offered by emerging companies for the optimisation of processes and activities developed by Iberdrola businesses. **At the close of 2021, PERSEO had carried out more than 70 pilot projects in real environments** as a key preliminary step in the search for companies with which to establish business relationships.

We have contributed to making a reality one of the solutions awarded in the Start-up Challenge **'Automation of the construction of electrical transport facilities'**, together with the Finnish company Hyperion Robotics. An innovative technique for the sustainable construction of concrete structures: **with 75 % less materials, up to 20 % less direct costs and the same levels of quality, efficiency and safety.** This pilot project marks a milestone in the company's aim to minimise the carbon footprint in the construction of its transport network.

IBERDROLA

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