



# Instituto Tecnológico de la Energía Solutions for a Smart Energy World



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### LETTER FROM THE PRESIDENT

The Energy Technology Institute (ITE) is recognised as a committed and sustainable technology centre, focused on putting technology and knowledge at the service of the entire business world. We are at a crucial moment for the energy sector, and that is why we need to continue working for a sustainable, efficient and safe energy model.

At ITE, for 30 years, we have been focusing our activity on developing technological solutions capable of meeting the challenges of the energy sector. Our firm aim is to move forward with industry towards the goal of decarbonisation by 2050. That is why we promote technological development through excellence, commitment, integrity and collaboration, with the aim of achieving a profound transformation in the current energy model to a more sustainable one.

Aware of this, we want to continue to be the benchmark both in terms of research and with the activity we carry out on a daily basis, in close collaboration with companies and productive sectors in which we promote business R&D&I. From here I want to thank all the support provided by the Valencian Institute of Business Competitiveness (IVACE), trusting in our commitment to transfer our knowledge and technology to companies.

Our technology centre has proven perfectly positioned to continue leading the transformation of the energy model that began from its foundation, and that allows us to remain a key international player in technological and industrial transformation especially in the Valencian Community.

This year it is worth noting the definition of a new Strategic Plan 2023-2026 in which the whole organisation has been aligned with the industry and which we are working on intensively. Similarly, I find it important to highlight the consolidation of our pilot plants: Battery Lab, Hydrogen, Circular Carbon and Energy Digitization as specialized laboratories, the first two being the only laboratories capable of addressing the entire value chain of battery and hydrogen manufacturing, in the Valencian Community.

I want to thank the industry for the trust it has placed in the ITE. Our mission is focused on generating and transferring knowledge and technology to address new energy challenges, which we know will be many and relevant, but we are prepared and willing to travel this path alongside the industrial world. To achieve this we have the best team of 121 experts in the energy sector. Together we will make it possible.

Miguel Rivas, President of the ITE









VISION



To be the technological benchmark in energy transformation, based on excellence, science and innovation, for the sustainable development of companies in a collaborative and integrated manner.

Generation and transfer of knowledge and technology to address new

challenges in the field of energy.





### **EXCELENCE**

We work for excellence and innovation through professionalism, knowledge generation and continuous improvement.

#### COMMITMENT

We are committed to people, our customers, business and society.

#### INTEGRITY

We act with professional ethics, integrity, independence and impartiality.

#### COLLABORATION

We like teamwork and collaborating openly and inclusively to achieve common goals.





### R&D&I- STRATEGIC LINES



The reliability and security of smart grids are two fundamental aspects and mark the present and future of renewable energy electrification and deployment in order to achieve the 2050 targets, when harmful emissions are expected to be virtually zero.

This strategic objective also ensures the design and development of solutions for the integration and

optimisation of new resources in CEL Energy Communities, hybrid networks and buildings. In addition, we characterise the energy behaviour of users to determine the control of energy demand

### **NETWORKS OF THE FUTURE**



Energy digitalisation and smart charging of electric vehicles have enabled ITE to take another step towards sustainable mobility in 2022. ITE has implemented monitoring policies to manage recharging and its optimisation, communications protocols, design of the sustainable mobility plan and deployment of recharging infrastructures. Testing and design of stations.

Sustainable mobility focuses different R&D&I projects that seek to reduce greenhouse gas

emissions and contribute to the decarbonisation that society needs. As regards the charging of electric vehicles, ITE offers innovative solutions to ensure correct charging, also taking into account grid capacity.

### SUSTAINABLE MOBILITY

### R&D&I- STRATEGIC LINES



Both batteries and renewable hydrogen are essential in this field. Therefore, ITE has continued to work and research on the exploitation and cost-effectiveness of manufacturing and using batteries, in order to achieve the goal of decarbonisation. ITE covers the entire battery value chain and has state-of-the-art infrastructures and laboratories, making it an international benchmark in this field.

As for renewable hydrogen, ITE works on the development, characterisation and testing of materials, as well as the integration and intelligent management of the production infrastructure and the development of hydrogen use phases, and introducing energy digitisation as an indispensableally.

### **ENERGY STORAGE**

### R&D&I- STRATEGIC LINES

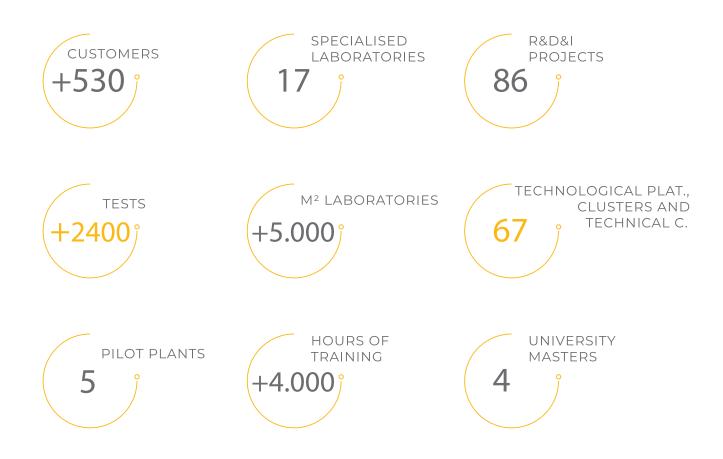


At ITE our aim is to walk the path towards energy transition and accompany companies, and industry and society, along it. On the 2050 horizon are zero emissions, and sustainability and decarbonisation. We also invest in biotechnology research, becoming Spanish benchmarks in the biotech sector. Our aim is to promote the search for quality innovation and foster collaboration in R&D&I activities between public bodies, companies and universities.

At ITE we are aware of the challenges that mean the business world must adapt to sustainability and decarbonization regulations, and for this reason we offer the most innovative solutions.

SUSTAINABILITY
AND
CIRCULAR ECONOMY

### R&D&I - CAPABILITIES



### PLP PILOT PLANTS











### LABS OUR SPECIALISED LABORATORIES

- SMARTDEVICES
- ENVIRONMENTAL TESTING
- ELECTROMAGNETIC FIELDS. EMF
- CALIBRATION
- LEGAL METROLOGY
- !NTEROPERABILITY
- PRIME COMMUNICATIONS CERTIFICACTION
- HIGH VOLTAGE
- FI FCTRIC ARC

- O DESC. PARTIALS AND ELECTROSTATIC
- MATERIALS SYNTHESIS
- MATERIALS CHARACTERISATION
- BATTERY TESTING
- H2 BATTERIES
- MODELLING SIMULATION
- **©** EV RECHARGE MANAGEMENT
- O DEMAND MANAGEMENT (GAD)

### ITE STAFF





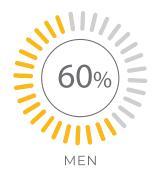


ITE has a highly qualified team in all the areas that make up this Technology Centre. Whether they are technologists or researchers, among others

the fact is that in 2023 the staff of the ITE reached 113 employees, of whom 60% are men and 40% women.

# ITE WORKFORCE







# **R&D&I PROJECTS**



# R&D&I PROJECTS IN COOPERATION WITH RESEARCH ORGANISATIONS







### NETWORKS OF THE FUTURE



#### **EMUFLEX**

RESEARCH AND DEVELOPMENT OF EMULATION ENVIRONMENT FOR VALIDATION AND NETWORK FLEXIBILITY PROVISION TESTING



IMAMCA/2023/09

Through carrying out this project the ITE intends to tackle the research and development of a solution that responds to the needs of our environment in a way that is fully aligned with the companies that provide technologies involved in the production and management of renewable energy in the different links in the value chain, providing the necessary knowledge to the market to contribute to the new challenges of the European Union.









### HYSGRID

SMART MANAGEMENT OF ENERGY RESOURCES IN LOCAL ENERGY COMMUNITIES



CFR-20191019

The objective of the Cervera HySGRID+ Network is to strengthen the technological capacity and promote solid cooperation between Spanish technology centres with a high level of complementarity. The ultimate goal will be to research and develop innovative technological solutions that facilitate the creation of highly efficient Local Energy Communities with a positive net balance (CELP) based on hybrid systems of renewable generation and storage.







### NETWORKS OF THE FUTURE



#### HEIMDAL

DESIGN AND DEVELOPMENT OF SECURITY ANALYSIS AND VULNERABILITY DETECTION METHODOLOGIES FOR CYBER-ATTACKS TARGETING SMART DEVICE HARDWARE AND **COMMUNICATIONS** 



The main objective of the HEIMDAL project is to analyse the potential cybersecurity vulnerabilities of smart devices in Smart Cities and Industry 4.0, analysing their cybersecurity from two points of view: on the one hand, against in-situ attacks that involve hardware manipulation and, on the other, against attacks that interfere with their communications.









### RESAIN

RELIABILITY, SAFETY AND INTEGRATION OF ELECTRONIC POWER SYSTEMS IN THE **LOW-VOLTAGE GRID** 



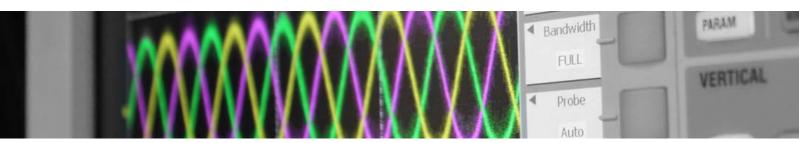
IMAMCA/2023/09

The RESAIN project focuses on developing tools to improve the reliability and safety of the operation of electronic power systems, as well as promoting their integration into the low Voltage AC grid.









### SUSTAINABLE MOBILITY



### **PRETRINITYS**

### SMART CHARGING TECHNOLOGIES, REGULATIONS, INTEROPERABILITY AND SERVICES



IMAMCA/2023/09

The PRETRINITYS project aims to carry out an SoA of open energy management standards. The interface between the charging station and the manufacturer's infrastructure can use different types of communication standards. It may be that some of them are proprietary, although there are efforts to create open solutions.







### **IMOLAB**

R&D PROJECT TO DEFINE AND DEVELOP A LABORATORY FOR DISTRIBUTED INTELLIGENT MOBILITY



IMDEEA/2022/13

The iMoLab proposes developing a laboratory for intelligent mobility through coordinated action of I&D that allows the availability of prototypes/demonstrators in the installations of the IITT.











### SUSTAINABLE MOBILITY



#### **HL-POWERTRAIN**

INTEGRATION AND MANUFACTURE OF A PROTOTYPE HYPERLOOP PROPULSION SYSTEM USING A TURBOJET AND AN ELECTRIC VEHICLE POWERTRAIN



INNEST/2021/219

POWERTRAIN is an innovative technology development project aimed at implementing a functional prototype and a digital twin of the hyperloop propulsion system using a turbojet and an electric vehicle powertrain for its validation.









Actuación cofinanciada por la Unión Europea a través del Programa Operativo del Fondo Europeo de Desarrollo Regional (FEDER) de la Comunitat Valenciana 2014-2021



### **NEWBUNKER II**

NEWBUNKER, INTRODUCTION OF AMMONIA AND HYDROGEN AND OTHER FUELS TO BUNKERING OPERATIONS, PHASE II



AEI-010500-2023-195

This NEWBunker II project analyses the state of the art in marine propulsion systems with fuels, focussing on bio-methanol, BioLNG (Liquefied Natural Gas) and BioLPG (Liquefied Petroleum Gas) with DME (dimethyl ether).









### **ENERGY STORAGE**



### BATSENS

STRATEGIES TO EXTEND LITHIUM BATTERY LIFE BASED ON NEW MATERIALS AND CELL SENSING



IMDFFA/2023/31

The aim of the BATSENS project is to deploy strategies to extend the useful life of lithium batteries by: 1) developing of new and more stable materials, 2) In-cell component sensing and 3) Post-mortem analysis of cells.











### EON

REFURBISHMENT OF LITHIUM BATTERIES FROM THE MOBILITY ENVIRONMENT USING ADVANCED DIAGNOSTICS



IMDEEA/2023/34

EON proposes retrofitting batteries as an alternative to extend their original life and promote sustainability. The process involves a detailed diagnosis of the battery and systematic disassembly, considering the associated risks.











### **ENERGY STORAGE**



#### **ROAD4HYDROGEN**

### ROUTE TO DIGITIZATION OF HYDROGEN PRODUCTION AND CONSUMPTION



IMDFFA/2022/36

The general aim of this project is to contribute to developing technologies for the production and consumption of green hydrogen, helping to solve the main associated technological challenges, through the development and characterization of components, modelling and digitization of processes











### **HYSTEC**

ANALYSIS FOR THE DEVELOPMENT OF TECHNOLOGICAL AND SUSTAINABLE SOLUTIONS IN RENEWABLE HYDROGEN PRODUCTION AND CONSUMPTION



IMDEEA/2023/30

Aligned with the objectives to achieve an emission-free system, the HySTEC project was born, where sustainable technological solutions for the production and use of renewable hydrogen will be developed.











## SUSTAINABILITY AND THE CIRCULAR ECONOMY



### REBALIRE

RECOVERY OF HIGH VALUE-ADDED MATERIALS THROUGH RECYCLING OF LITHIUM BATTERIES AND AGROFORESTRY AND INDUSTRIAL WASTE



The general aim of the REBALIRE project is to develop strategies to improve the sustainability of lithium batteries by:

- Obtaining anodic materials from waste revaluation.
- Lithium battery recycling.









### **ENERGYMCELL**

ORGANIC BATTERY FOR SPORTS MONITORING



IMDEEA/2023/30

ENERGYMCELL aims to develop new methods of generating clean energy to contribute to the growing trend of decentralised personal monitoring, which requires materials with improved performance in flexibility, conductivity, biocompatibility to integrate them into a user's everyday life.









### SUSTAINABILITY AND THE CIRCULAR ECONOMY



#### GEDAI

TO IMPROVE PERFORMANCE THROUGH THE DEPLOYMENT OF DIGITAL ENERGY TWINS AND PRODUCTIVE APPLICATION TO THE VALUE CHAIN OF THE BINOMIAL WATER TREATMENT AND INDUSTRIAL PRODUCTION SECTOR.



IMAMCA/2023/09

The main aim of the project is the reduction in energy costs of the purification processes of industrial water, maintaining the quality and productivity of the associated manufacturing process; and achieving improvements throughout the water treatment value chain (manufacturing-waste generation after water treatment). All this will be easily adapted to use cases in different contexts.









### **TURBINES**

IMPROVING THE SUSTAINABILITY OF DRINKING WATER DISTRIBUTION SYSTEMS BY USING HYDROFI FCTRIC TECHNOLOGY



INNEST/2022/230

The TURBINES project seeks to study the feasibility of PATs from a multidisciplinary point of view, combining the creation of modelling, preselection and response estimation methodologies with experimental characterisation activities at the hydraulic, mechanical and electrical levels. All these actions will serve to carry out economic feasibility studies and design-optimised exploitation models.

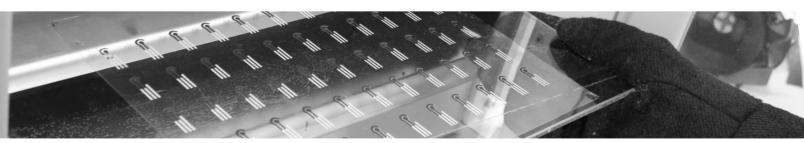








Actuación cofinanciada por la Unión Europea a través del Programa Operativo del Fondo Europeo de Desarrollo Regional (FEDER) de la Comunitat Valenciana 2014-2021





As a reference technology centre, throughout 2023 the Energy Technology Institute has worked on generating knowledge, through our own R&D&I projects and those where we work with companies.

Our main goal is to transfer all this knowledge to the industry to help companies become more competitive.

During 2023 we have been present in multiple media outlets, at energy sector events, as well as in scientific publications in specialised journals. In addition, it has been a year in which we have participated in a variety of meetings, fairs and days as experts in electrical mobility, batteries, energy communities, hydrogen, the circular economy, among others.

### **ACTUACIONES**

PUBLICATIONS
IN SOCIAL NETWORKS
+1700

CONFERENCE
PARTICIPATIONS

48

SCIENTIFIC AND
TECHNICAL ARTICLES

7

PUBLICATIONS
TO CONGRESSES

20



### NETWORKS OF THE FUTURE

### NATIONAL

Alianza Net-Zero MAR

CIGRE, Consejo int. grandes sist. eléctricos

FUTURED, Plataforma española de redes eléctricas

CECV, Asociación Cluster De La Energía De La Comunidad Valenciana

### INTERNATIONAL

Derlab. European Distributed Energy Resources Laboratories e.V

**DLMS User Association** 

S3PEnergy, Energy and the Smart Specialisation Platform on Energy

EERA, European Energy Research Alliance

ETIP SNET, European Technology and Innovation Platform Smart Networks for Energy Transition. ETP SmartGrids

ILPA, International Lightning Protection Association

Meters and more association

PRIME Alliance

SmartEN, Smart Energy Europe

# SUSTAINABLE MOBILITY

### NATIONAL

AEDIVE, Asociación Empresarial para el Desarrollo e Impulso del Vehículo Eléctrico

AVVE, Asociación Valenciana del Vehículo Eléctrico

### INTERNATIONAL

CHAdeMO Association

OCA, Open Charge Alliance

OCPI, Open Charge Point Interface

### **ENERGY STORAGE**

### NATIONAL

AeH2, Agenda Sectorial de la Industria del Hidrógeno . Asociación Española del Hidrógeno

Aepibal. Asociación Empresarial de Pilas, Baterías y Almacenamiento Energético

AVB, Alianza Valenciana de Baterías

EH2CV. Estrategia de Hidrógeno Verde de la CV

BatteryPlat, Platforma Española de Baterias

MATERPLAT, Plataforma Tecnológica Española de Materiales Avanzados y Nanomateriales

PTE HPC, Plataforma Española de Hidrógeno y Pilas

Lab SMARTWATER

### INTERNATIONAL

BEPA, Batteries European Partnership Batteries 4 Europe

EBA, European Battery Alliance

EMIRI, Energy Materials Industrial Research Initiative

Hydrogen Europe Research

S3P-Industry, Smart Specialisation Platform for Industrial Modernisation

World Hydrogen Leader

ETIP. Batteries Europe. European Technology and Innovation Platform

European Clean Hydrogen Alliance

# SUSTAINABILITY AND CIRCULAR ECONOMY

### NATIONAL

ALINNE, Alianza por la investigación e innovación energética

BIOPLAT, Plataforma Española de la Biomasa

Bioval, Clúster BIO de la Comunitat Valenciana

PTE-EE, Plataforma Tecnológica Española de Eficiencia Energética

Inndromeda, Alianza en Tecnologías Innovadoras para la CV

RED INNOTRANSFER, Plataforma de Innovación Abierta de la CV

Clean Energy Transition (A Través de REDIT)

### INTERNATIONAL

EIT, CLIMATE- KIC

INAM, Innovation network for advanced materials



In March 2023 we inaugurated the Battery Lab, the only battery laboratory in the Community of Valencia, developed by the Energy Technology Institute (ITE) with the aid of nearly half a million euros from the Valencian Institute of Business Competitiveness (Ivace).

This laboratory, located in the ITE facilities, covers the entire battery value chain and, unlike other similar laboratories in Spain, it has the most advanced technology, which allows it to work with all types of batteries, from the smallest, for electronic devices (cells), to those for electric vehicles or charging stations (complete packs for electric

vehicles, including higher voltage batteries).

Battery Laboratory is focused on supporting the Valencian industrial ecosystem in addressing the different challenges that exist for the technological and industrial evolution of batteries, specifically in areas such as engineering, battery and stationary storage manufacturers, the automotive industry, light mobility, the railway sector, the chemical, metal and ceramic sectors, among many others.



### UNIQUE RESEARCH UNIT

The Battery Lab is divided into three areas of expertise to address the different technological challenges of batteries, related to the manufacture and testing of cells, modules and battery packs and second life. This way it complements ITE's existing capabilities for batteries and addressing the entire value chain.

Specifically, the Battery Lab is divided into the following areas: Battery Testing, Battery Engineering and a Battery Cell Manufacturing Lab. Each allows research and testing at the highest level by combining testing capabilities with battery modelling, accelerating the design and development stages of the product, with the possibility of predicting their behaviour and

validating technological solutions.

In short, it is a unique research unit in the Valencian Community that provides our territory with new capabilities in the field of batteries that until now it did not have, while making the Energy Technology Institute a specialised centre for the development of technological solutions for batteries and their transfer to industry, positioning it as a benchmark to meet the needs of lithium battery manufacturers and users at cell level, module and even pack level.



### BATTERY LAF



BATTERY LAB VIDEO









In 2023, ITE launched its second Plan for Equal Opportunities between Women and Men, which covers 4 years (2022-2026), an essential action to implement, in a real and effective way, the principle of gender equality in all the policies that, at different levels, this centre has been developing. Remember, companies are obliged to ensure effective equality between women and men, according to Article 45 of Organic Law 3/2007, of 22 March.

Specifically, the main objectives of this second ITE Equality Plan are as follows:

- To promote a culture that fosters the principle of equal treatment and equal opportunities.
- To ensure and guarantee equal treatment and opportunities for all staff.
- To ensure a gender-neutral selection and recruitment process for new professionals.
- To promote and facilitate access for both women and men to all categories and departments of ITE in a balanced way.
- To propose the necessary measures to avoid imbalances in equal opportunities.
- To continue promoting measures to reconcile work, family and personal life, regardless of gender.
- To guarantee and ensure the principle of equal pay.

- To ensure equal representation in the various ITE bodies.
- To continue promoting the use of inclusive or gender-neutral language in ITE's internal and external communications.

To ensure a system of prevention of sexual and gender-based harassment in the workplace.

The planned actions include the following areas:

- Access to employment, selection, recruitment and professional classification
- Promotion
- Training
- Remuneration
- Achieving a work-life balance
- Occupational health
- Prevention of gender-based violence and harassment
- Communication
- Gender-based violence
- Working conditions



ITE is strongly committed to training.

One of the main activities of the technology centre is to train new professionals who will help in the energy transition process.

During 2023 we taught three official Master's degrees in collaboration with the Cardinal Herrera CEU University, related to the energy, the environment and energy transition.

We also have our own master's degree in MBATT batteries in collaboration with the University of Valencia and Power Flectronics.

In addition, we have carried out specialization and tailor-made courses that are 100% personalized and adapted to the needs of the company.

To do all this, we have a teaching team of professionals who are experts in the business and organization sector of the highest relevance.



#### COURSES AND MASTER'S DEGREES

Master's in Project Management and Energy Installations (face-to-face).

Master's in Energy Facilities Management and Project Internationalization (online).

Master's in Environmental Management (semi-face-to-face).

Master's in Continuing Education in Battery Technologies (online).

Specialist energy storage course.

Specialist course in Energy Communities.

Specialist course in Renewable Hydrogen. A future direction.

Specialist course in Energy Communities.

Specialist course in Green Hydrogen.

Course in Storage, Batteries.



#### ITE LINK WITH THE WORLD OF WORK - TRAINING

With all the training actions that ITE has developed in 2023, we have managed to ensure that students are more qualified and can expand their knowledge, thus promoting their employability and improving their professional career.

To achieve these results, we have professional teachers who are experts in the sector and infrastructures with cutting-edge technology that students have within their reach.

In addition, our training commitment also includes students being able to do internships in leading companies in the sector and visits to representative facilities.





Máster Universitario Gestión de Proyectos e Instalaciones Energéticas 15ª ED http://master.ite.es





Máster Universitario en Gestión de Instalaciones Energéticas e Internacionalización de Proyectos 10ª ED http://masteronline.ite.es





Máster Universitario en Gestión Ambiental Vª ED http://mastergestionambiental.ite.es



MBATT

Master of Continuing Education in Battery Technologies http://mbatt.uv.es



### INCOME BY TYPE OF ACTIVITY









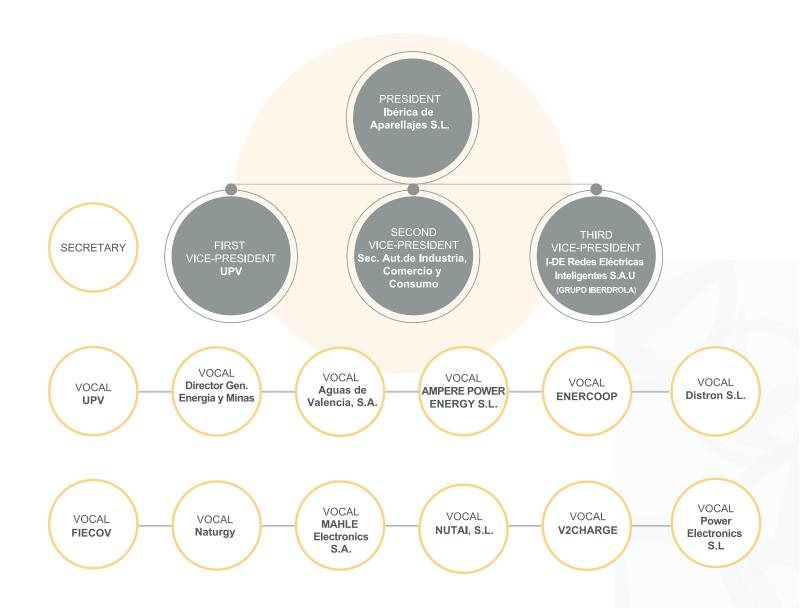
#### BREAKDOWN BY INCOME TYPE







#### GOVERNING BODIES - OUR COMPANIES



#### PARTNERS - OUR COMPANIES

ABERVIAN S.L.

ABO WIND ESPAÑA, S.A.U.
AGUAS DE VALENCIA, S.A.
AKUO RENOVABLES ESPAÑA SL

ALGINET DISTRIBUCIÓN ENERGÍA ELÉCTRICA, S.L.U

AMARA SOLAR RENOVABLES SA AMPERE POWER ENERGY, S.L.

ANTONIO LÓPEZ GARRIDO, S.A. (ALG)
APLICACIONES TECNOLÓGICAS, S.A.
APLIOUEM MICROONES, 21, S.L.

ATERSA-APLICACIONES TÉCNICAS DE LA ENERGÍA, S.L.

AUDITESA, S.L.

BALEÀRIA EUROLINEAS MARÍTIMAS, S.A.

BASOR ELECTRIC S.A.

BATTERYFLY SMART ENERGY, S.L. BP ENERGÍA ESPAÑA, S.A.U. CEMER PLAY, S.L (PROTOTECH)

CIRCUTOR S A

COLEG. OFIC. INGENIEROS TEC. INDUSTRIALES ALICANTE
COLEGIO OFICIAL DE INGENIEROS INDUSTRIALES DE LA

COMUNITAT VALENCIANA

COLEGIO OFICIAL DE INGENIEROS TÉCNICOS INDUSTRIALES DE

VALENCIA

COMERCIAL SOSTENIBLE CASTELLÓN SLU COMPAÑÍA LEVANTINA DE REDUCTORES (CLR)

COOPERATIVA ELÉCTRICA BENÉFICA DE SAN FRANCISCO DE

ASIS, COOP.V.

COOPERATIVA VALENCIANA DE TAXISTAS S.C.V COVER VERIFICACIONES ELÉCTRICAS, S.A. DERECTIO INGENIERÍA ENERGÉTICA S.L. DISEÑOS ARTISTICOS E INDUSTRIALES S.L

DISMUNTEL, S.L.

EDISTRIBUCIÓN REDES DIGITALES, S.L.- UNIPERSONAL.

EIFFAGE ENERGÍA SLU

ELECNOR SERVICIOS Y PROYECTOS S.A.U. ELÉCTRICA DE CALLOSA DE SEGURA, C.V.L.

ELECTRICIDAD ALCACER, S.L.

ELECTRICIDAD VEGA Y GALINDO, S.L.

ELECTRICIDAD VIALA, S.L.

ENERGER ENERGY HOLDING, S.L.

ENERGY PROSPECT TECHNOLOGIES, S.L. ENGITEC PROJECTES D'ENGINYERIA, S.L.

ETRA INVESTIGACION Y DESARROLLO, S.A. (ETRA I+D)

EVOLUTIA ACTIVOS S.L FENIE ENERGÍA SA

**FIECOV** 

FONDO DE ENERGIAS RENOVABLES, S.A. (FOENER)
FRANCISCO MARTINEZ GRUPO TECNOLÓGICO. S.L.

FRV X GLOBAL SERVICES S.L FUTURE MOTORS IBERIA, S,L

GAS TO MATERIALS TECHNOLOGIES, S.L. (G2MTECH)
GERMANIA DE INSTALACIONES Y SERVICIOS, S.L.

GH ELECTROTERMIA, S.A

GREENB2E BUSINESS TO ENERGY, S.L.

GREENE ENTERPRISE, S.L. HEMP TRADING, S.L.U

HIDROGENO CIRCULAR S.L.U.

HIVE ENERGY LIMITED

HYBRID ENERGY STORAGE SOLUTIONS, S.L. (HESS)

I-DE REDES ELÉCTRICAS INTELIGENTES, S.A.L. (GRUPO

IBERDROLA)

I.E. ELECTROMATIC S.L.
IBÉRICA DE APARELLAJES, S.L.

INDITEX, S.A.

#### PARTNERS - OUR COMPANIES

INDUSTRIAL DE ENERGÍA Y TECNOLOGÍA, S.L. (INDERTEC)

INDUSTRIAS TAYG, S.L.U.

INGENIERÍA Y MARKETING, S.A (GRUPO DOMINGUIS ENERGY

SERVICES-GDES)

INNOVATIVE FIRE SOLUTIONS S.L.

INSTALACIONES TÉCNICAS AUBACH S.L.

INSTITUTO VALENCIANO DE COMPETITIVIDAD EMPRESARIAL

(IVACE)

ISTOBAL, S.A.

ITERA SOLUCIONES DE INGENIERÍA S.L

J.A. MARTINEZ ETAYO S.L. JOSÉ LUIS SERRA SEGUI

LABORATOTIO PRINT3D SOLUTIONS CLM SL

LANDIS & GYR, S.A.U

M.D. ELECTROTECNIA Y PROTECCIÓN, S.L.

MAHLE ELECTRONICS, S.L.U MARSAN INGENIEROS, S.L.U.

MATRICERIA Y ESTAMPACIÓN F. SEGURA, S.L.U

MERCADONA, S.A

MONTAJES ELECTRÓNICOS DORCAS, S.L.

NEGOCIOS INTELIGENTES 7EXPERIENCE, S.L.

NUEVAS TÉCNICAS DE AUTOMATIZACIÓN INDUSTRIAL, S.L.

OBREMO S.L.

OCEAN WINDS S.L.

OMRON ELECTRONICS IBÉRIA, S.A.

ORMAZABAL MEDIA TENSIÓN, S.L.U

OVANS SMART CITIES ENGINEERING, S.L.

PORCELANAS INDUSTRIALES, S.A.

PORTALÁMPARAS Y ACCESORIOS SOLERA

POWER ELECTRONICS ESPAÑA, S.L.

PROEMISA, S.L.

PROSOLUX SOLAR SOLUTIONS, S.L.

PSR S.L. (PARARRAYOS SALVADOR ROMERO S.L.)

RED ELÉCTRICA DE ESPAÑA, S.A.U

REFRIVAL, S.A.

RENAULT RETAIL GROUP VALENCIA, S.A.

ROMUR RENOVABLES, S.L.

**SAPIENS** 

SCHNEIDER ELECTRIC ESPAÑA, S.A.

SERTEVAL ELÉCTRICA S.L.

SERVICIOS Y APLICACIONES INEL, S.L.

SIEMENS S.A.

SLUSH & BEVERAGE EQUIPMENT V AIR S.L.U

SMARTENERGY SPAIN SL

SOCIEDAD IBÉRICA DE CONSTRUCCIONES ELÉCTRICAS, S.A.

TECNOLOGY SOLUTIONS EXPERTS S.L.

TELECONTROL STM. SL

TERA BATTERY RECYCLING, S.L

TRAFFIC FUTURA 2007, S.L

TURELECTRIC LINE, S.L.

UFD DISTRIBUCIÓN ELECTRICIDAD, S.A.

UMBRELLA SOLAR INVESTMENT, S.A.

UNIVERSIDAD POLITÉCNICA DE VALENCIA

UVAX CONCEPTS, S.L.

VARESER 96 SL

VERESCENCE LA GRANJA, SLU

VERIFICACIONES DEL SURESTE S.L

VERSA DESIGN S.L.

XIAMEN GALAXY ENERGY TECHNOLOGY CO., LTD

ZELEROS GLOBAL, S.L.

ZIGOR CORPORACIÓN S.A.



Instituto Tecnológico de la Energía



## SUSTAINABILITY REPORT 2023



#### SUSTAINABILITY REPORT ITE



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The aim of this report is to report on environmental, social and staff issues as well as those relating to human rights for the Energy Technology Institute (ITE).

To prepare this sustainability report, the standards of the Global Reporting Initiative (GRI Standards).



Consult the ITE 2023 sustainability report



The corporate purpose of the EnergyTechnology Institute (ITE) is aligned with Sustainable Development Goals of the United Nations 2030 Agenda, which reflects major social trends and responds to major economic, social and environmental challenges.

That's why the Energy Technology Institute is committed to transparently reporting the impacts on the SDGs to which it contributes, according to the activities it carries out, with the aim of building a greener future and helping society thrive to make it fairer and more sustainable.





#### **QUALITY POLICY**

ITE is highly committed to the care of the environment and to sustainable development at all levels, and meets its environmental commitment by ensuring compliance with applicable legislation in this area in all its spheres of its operations. To do this it undertakes the commitment to develop its activities with the greatest respect for the environment, thereby minimising the negative

effects, if any, that those activities might cause.

In addition, ITE has implemented an environmental management system according to Standard 14001 and is certified with an accredited certification body.

- Ensure that best professional practices are established with regard to the services provided and the promotion of the health and safety of all staff in the tasks performed.
- All staff must be familiar with the system documentation and implement the policies and procedures established by the organisation in their work place.
- Compliance with the requirements applicable to the organisation: the requirements established by the standards ISO/IEC 17025, ISO/IEC 17020, ISO/IEC 17065, ISO 9001, ISO 14001, ISO 45001 as well as compliance with the accreditation criteria established by ENAC, legal, regulatory and other requirements that may be established.
- Continuous improvement of the management system for performance improvement.
- Environmental protection, pollution prevention and other specific commitments relevant to the context of the organisation.
- Provide safe and healthy working conditions for the prevention of work-related injuries and health deterioration. Safety is everyone's responsibility.
- The workplace will be adapted to the person, according to OSH criteria.
- Eliminate hazards and reduce OSH risks.
- Consultation and participation of workers and, where they exist, workers' representatives.



#### **ENVIRONMENTAL COMPLIANCE**

The organisation thoroughly monitors legal requirements and all those that apply to our activity are complied with.

- Water.
- Air quality.
- Noise pollution.
- Integrated Pollution Control.
- Atmospheric emissions.
- Environmental assessment.
- Environmental taxes.
- Waste prevention and management.
- Environmental liability.

## ENVIRONMENTAL RISK ASSESSMENT

In 2023 no significant concerns were found during the environmental risk assessment, however for several cases a consumption control and/or generation volume control was proposed to check the rate of increase:

- Waste from electrical and electronic equipment no longer in use.
- Waste mineral oils.
- Residues of other solvents.
- Electricity consumption.



#### **POLLUTION**

Measures put in place during 2023 to mitigate carbon emissions are

- Training: We believe that training is the engine of change to achieve decarbonisation and energy transition. We work with different programmes
- ITE has implemented control policies to manage and optimise charging.
- Design of the sustainable mobility plan and deployment of charging infrastructures.
- Testing and design of stations. Sustainable mobility is the focus of several R&D&I projects.
- In terms of electric vehicle charging, ITE offers innovative solutions to ensure intelligent management of simultaneous charging, taking into account the flexibility of the electrical system.
- Both batteries and renewable hydrogen are essential in this field. For this reason, ITE has continued to work and research on the exploitation and cost-effectiveness of the manufacturing and use of batteries, in order to achieve the goal of decarbonisation.
- As regards renewable hydrogen, ITE is working on the development, characterisation and testing of materials, as well as on the integration and intelligent management of the production infrastructure and development of the hydrogen use phases, and introducing energy digitalisation as an indispensable ally.



#### **CARBON FOOTPRINT**

ASSOCIATED	TOTAL	EMISSION	EMISSIONS
CONSUMPTION 2023		FACTOR (2022)	(KG CO <sub>2</sub> )
Paper consumption (1 pk of 80 gr = $2.45$ kg.)	552,25	3,00 kg CO2 eq/kg	1.653,75
Electricity consumption (kWh.)	610.230	0,270 kg CO₂ eq/kWh	164.762,10
Self-consumption EERR (kWh.)	68.185,12	0,788 kg CO₂ eq/kWh	0,00
Water consumption (m³)	2.961	0,00 kg CO₂ eq/m3	2.333,27
Diesel consumption (litres)	618,80	2,236 kg CO₂ eq/l	1.383,64
Petrol consumption (litres)	1.254,16	2,488 kg CO₂ eq/l	3120,35
		TOTAL	173,253 Ton CO₂

#### **RAW MATERIAL CONSUMPTION**

In order to promote the use of environmentally friendly materials, we have implemented environmental criteria in products with a greater impact:

- Recycled paper cups at water fountains.
- Distribution of corporate mugs to minimise the use of cups.
- Distribution of corporate bottles to minimise the use of cups and other plastic drinking containers.



## SUSTAINABLE RESOURCE MANAGEMENT

At ITE we do not currently have a specific procedure for managing measures to reduce the waste we generate. However, over the years, we have implemented various practices aimed at minimising this impact.

Some of these initiatives include:

- Use of digital documents instead of physical printouts.
- We collaborate with an external company for the correct management of obsolete or unused electronic equipment.
- We configure our printers to save paper and ink.
- Recycling containers distributed throughout the ITE facilities.

## ENERGY EFFICIENCY AND ADOPTION OF RENEWABLE ENERGY

With the aim of improving energy efficiency and moving towards the use of renewable energy sources, which will contribute to reducing energy consumption and, therefore, mitigating the environmental impact of our business activities, we plan to develop specific measures such as:

- Progressive implementation of electronic elements with better energy rating.
- Progressive migration to LED lighting to reduce energy consumption.
- We prioritise the use of natural light in workspaces.
- Expansion of the existing solar photovoltaic installation for additional power generation.
- Pilot of smart charging infrastructure for EVs at ITE facilities.
- Plan for the use of electric scooters.



#### INTERNAL POLICIES

The values of ITE are based on social concepts that have been embodied in different ways; our industrial relations, the promotion of equality and work-life balance, our management model based on ethical values, the generation of an ideal and healthy working climate, our commitment to the environment and also to society from a solidarity perspective.

At ITE we have multiple channels of communication with our staff and third parties to foster a culture of dialogue as the basis of our internal information system and compliance system. The following are the channels for complaints and/or inquiries that ITE has:

- Ethical Channel: online platform (https://ite.whistleblowernetwork.net/frontpage) provided by a specialised technology company and available on the ITE website and intranet, in a separate and easily accessible section. The platform has measures in place to preserve the security and integrity of information and personal data processing.
- By post to the address Avda Juan de la Cierva 24 (46980 Paterna) VALENCIA (Parque Tecnológico) for the attention of the Ethics Committee.
- By e-mail (comiteetico@ite.es) for the attention of the Ethics Committee.
- Face-to-face meeting: it is also possible to report any conduct verbally by requesting a face-to-face meeting with the Head of the Internal Information System within 7 days of such a request through the Channel platform.



# 3.2 SOCIETY AND PEOPLE

#### COMUNICATIONS

ITE has had an Ethical Channel since 2017 through which incidents and irregularities can be reported.

At ITE we have different channels of communication with our internal and external stakeholders because we promote a culture of open, transparent and reliable communication between people, we promote the culture of communication as a fundamental element of our internal information system and crime prevention model. However, any communication or complaint, regardless of how

they are communicated, are processed in accordance with the Policy and Process for Internal Information, provided that they come within the scope of this policy.

#### COMPROMISO SOCIAL

In 2023 ITE allocated 34% of its purchases to local suppliers.









## 3.3 ETHICAL VALUES



#### **GOVERNING BODY**

ITE has a governing body, the Governing Council, composed of different members: president, vice-presidents, voting members, secretary and director (ET1).

In 2023, 6 Governing Council and 1 General Assembly (ET2) meetings were held. The Governing Council meeting is held quarterly.

The governing body is made up of 17 members (ET3), all of whom are independent directors (ET4).

#### CODE OF ETHICS

There is a Code of Ethics approved by the Governing Council which must be known and complied with by employees.

The entity has the necessary means to ensure regular knowledge, dissemination and monitoring, as well as channels for complaints. This is published on the website and accessible to all interested parties (ET5).

#### **ESG RISK IDENTIFICATION**

The organisation implements actions to mitigate the effects of major material risks identified by the entity (ET8) through needs analysis and analysis of stakeholder expectation, context analysis and identifying risks and opportunities of each of the ITE processes.

#### COMBATTING CORRUPTION

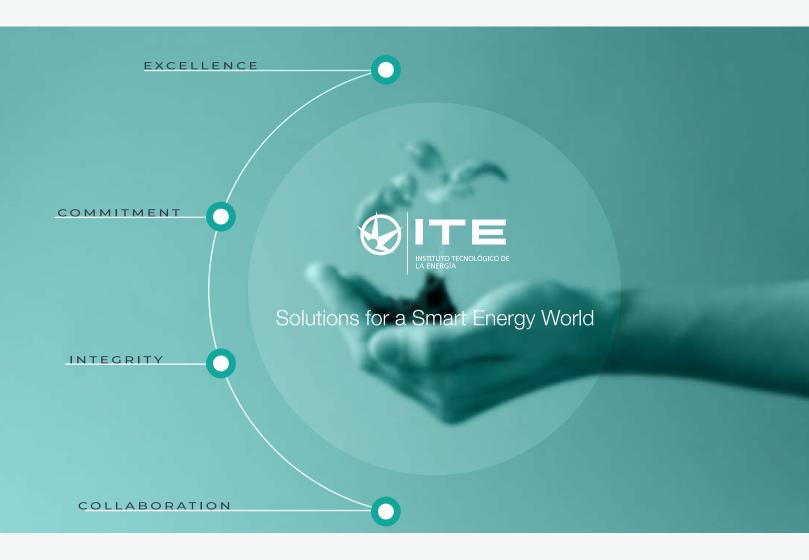
All employees of the entity receive anti-corruption training (ET12). Anti-corruption training is also provided to all ITE directors (ET13) as well as to all members of the Governing Council (ET14). ITE has an Anti-Corruption Plan (ET15).

#### **CORPORATE WEBSITE**

ITE has a corporate website accessible to people with functional or sensory diversity (E20) The annual accounts of the entity are not published on its corporate website (E21).

ITE produces an annual report of activities reporting on its ESG commitments, activities and performance. This report is available on the organisation's website. (E22)









SIR SELF-ASSESSMENT INDICATOR NO.	SELF-ASSESSMENT Model	DECREE 200/2022	2023
Employed people			
B1	Total number of persons employed	SL1-2	154
B2	Number of employees 2021 (All persons who have been employed in 2022)	-	157
В3	Number of female employees	SL4-1	55
B4	Number of female employees in previous year	-	65
B5	Number of persons employed under 30	SL14-1	44
В6	Number of employed persons over 50	SL15-1	8
В7	Number of people employed on permanent contracts	SL17-1	112
B8	Total number of contracted hours	SL27-2	190.188,38
B9	Number of employees subject to regular performance appraisa	l SL29	0
B10	Total number of persons employed full time	SL44	133
B11	Total number of hours contracted in the previous year	-	184.611,46
Managers			
C1	Total number of managers	SL5-2	12
C2	Number of women managers	SL5-1	7
C3	Number of executives living in the Valencia region	SL42-1	12
C4	Existence of a board of directors / governing body	ET1	SI
C5	Total number of board members	SL7-2	19
C6	Number of women on the board of directors	SL7-1	2
С7	N. of annual meetings of the board of direct. / governing body	ET2	4
C8	Number of independent board members	ET4	17





SIR SELF-ASSESSMENT INDICATOR NO.	SELF-ASSESSMENT Model	DECREE 200/2022	2023
Work environment			
D1	Number of employees leaving the org voluntarily, through resignation, retirement or death in service	SL10-4	27
D2	Number of female employees leaving the organization voluntarily, through resignation, retirement or death in service	SL10-5	9
D3	Number of accidents with sick leave	SL26-1	3
D4	Number of deaths as a result of a work accident or occupational	SL27-1	0
D5	Number of hours worked	SL27-2	190.188,38
D6	No. of female employees on parental leave	SL35-1	4
D7	No. of female employees entitled to parental leave	SL35-2	4
D8	Number of male employees on parental leave	SL36-1	2
D9	No. of male employees entitled to parental leave	SL36-2	2
D10	No. of total recruitment in the last three years:	SL9-2	65
D11	Number of women recruited in the last three years:	SL9-1	25
D12	Number of employees who have returned to work after completion of parental leave	SL20-1	2
D13	Number of employees who should have returned to work after parental leave	SL20-2	2
D14	Number of employees who have returned to work after parental leave and who remain employed 12 months later	SL21-1	2
D15	N. of exemplified persons who ret. from parental leave in prev year	-	3
D16	Number of confirmed corruption cases	ET16	0
D17	No. of identified cases of conviction for human rights violations	SL1-1	0,00
D18	Total days of absenteeism in the organization	SL25-1	981
D19	Voluntary homeworking	SL37	si
D20	Total working days contracted by the organisation	SL25-2	23.773







SIR SELF-ASSESSMENT INDICATOR NO.	SELF-ASSESSMENT Model	DECREE 200/2022	2023	
Investments / R&D&I / Pu	Investments / R&D&I / Public aid			
E1	Investments in the Community	SL39-11	712.403,67	
E2	Investment in R&D&I	ID2-2	5.939.219,43	
E3	Government financial assistance (required + not required)	SL41-1	0	
E4	No. of patents obtained in the last year	ID1	0	
Comp <b>l</b> aints	Complaints			
G1	No. of complaints by clients res. positively	ET18 -1	1	
G2	No. of complaints by clients	ET18 -2	1	





SIR SELF-ASSESSMENT INDICATOR NO.	SELF-ASSESSMENT Model	DECREE 200/2022	2023
Work environment			
H1	Identification of material risks	ET6	NO
H2	Mitigating material risks	ET8	SI
НЗ	The company has a corporate WEB	ET20	SI
H4	The company prepares an annual report of activities	ET22	SI
H5	Diversity policy	SL12	SI
Н6	Double labelling in Valencian and Spanish	SL47	NO
H7	Corporate website in Valencian and Spanish	SL48	NO
Н8	Material risk assessment	ET7	NO
Н9	The organisation undergoes an external audit	-	si
H10	The organisation undertakes an internal audit	-	si
H11	The annual accounts of the company are public	ET11	si
H12	Non-discrimination statement	SL13	SI
H13	Bottom-to-top communication channels	SL28	si
H14	Universal accessibility	SL16	SI
H18	The company produces an annual environmental report	ET10	SI
H19	The company has a Code of Conduct	ET5	SI







SIR SELF-ASSESSMENT INDICATOR NO.	SELF-ASSESSMENT Model	DECREE 200/2022	2023
Suppliers			
l1		SL43-1	193,00
12		SL43-2	564,00
Consumption			
L1	Tonnes of CO₂ equivalent	AM1	173,25
L2	Total water consumption (litres)	AM7, AM8	2.961.000,00
L3	Total water consumption (litres) in the previous year	-	1.762.000,00
L4	Total energy consumption (joules) external sources (Iberdrola)	AM9-1	2.196.828.000.000,00
L5	Total energy consumption (joules) in the previous year	-	2.020.000.000.000,00
L6	Consumption of energy from renewable sources (July)	AM9-6	245.466.432.000,00
	Total consumption of energy in joules	-	
L7	Waste generated (tons)	AM4	6,509 Tn
L8	Recycled waste (tons)	AM5-1	6,43 Tn
L9	Reused waste (tons)	AM9-6	6,43 Tn







SELF-ASSESSMENT Model	DECREE 200/2022	2023
Existence of a plan covered by the law	SL32	si
Equality Plan	SL6	SI
Plan against sexual harassment	SL8	SI
Mentoring scheme	SL34	No
Contingency plan	ET9	NO
Anti-corruption plan	ET15	SI
There is a defined plan for climate change mitigation and adaptation of polluting emissions	ET8	SI
Number of employees trained in anti-corruption	ET12-1	154,00
No. of employees trained in human rights	SL2-1	113,80
Number of employees trained in occupational risk prevention	SL24-4	154,00
Number of directors trained in anti-corruption	ET13 - 1	12,00
Number of managing directors trained in anti-corruption	ET14 - 1	19,00
Total training hours provided to total employees	SL11-2	3.278,64
Total training hours provided to female employees	SL11-1	1.077,98
	Existence of a plan covered by the law  Equality Plan  Plan against sexual harassment  Mentoring scheme  Contingency plan  Anti-corruption plan  There is a defined plan for climate change mitigation and adaptation of polluting emissions  Number of employees trained in anti-corruption  No. of employees trained in human rights  Number of employees trained in occupational risk prevention  Number of directors trained in anti-corruption  Number of managing directors trained in anti-corruption  Total training hours provided to total employees	Existence of a plan covered by the law  SL32  Equality Plan  SL6  Plan against sexual harassment  SL8  Mentoring scheme  SL34  Contingency plan  ET79  Anti-corruption plan  ET15  There is a defined plan for climate change mitigation and adaptation of polluting emissions  Number of employees trained in anti-corruption  ET12-1  No. of employees trained in human rights  SL2-1  Number of employees trained in occupational risk prevention  SL24-4  Number of directors trained in anti-corruption  ET13 - 1  Number of managing directors trained in anti-corruption  ET14 - 1  Total training hours provided to total employees  SL11-2







Solutions for a Smart Energy World









