



Italian National Agency for  
New Technologies, Energy and  
Sustainable Economic Development







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New Technologies,  
Energy and Sustainable  
Economic Development





*“ ENEA is a public body dedicated to research and technological innovation, as well as to the provision of advanced services to enterprises, public administration and citizens in the fields of energy, environment and sustainable economic development. ”*

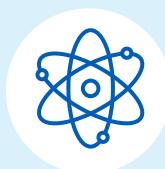
## About us

**2250 people** work in our research centres and laboratories. Supported by **excellent experimental facilities, infrastructure and instrumentation**, we carry out projects, studies, tests, evaluations and analyses with the aim of transferring technological innovation and our wealth of expertise to the national system.

## Our strategic sectors



**RENEWABLES**



**NUCLEAR**



**SUSTAINABILITY**

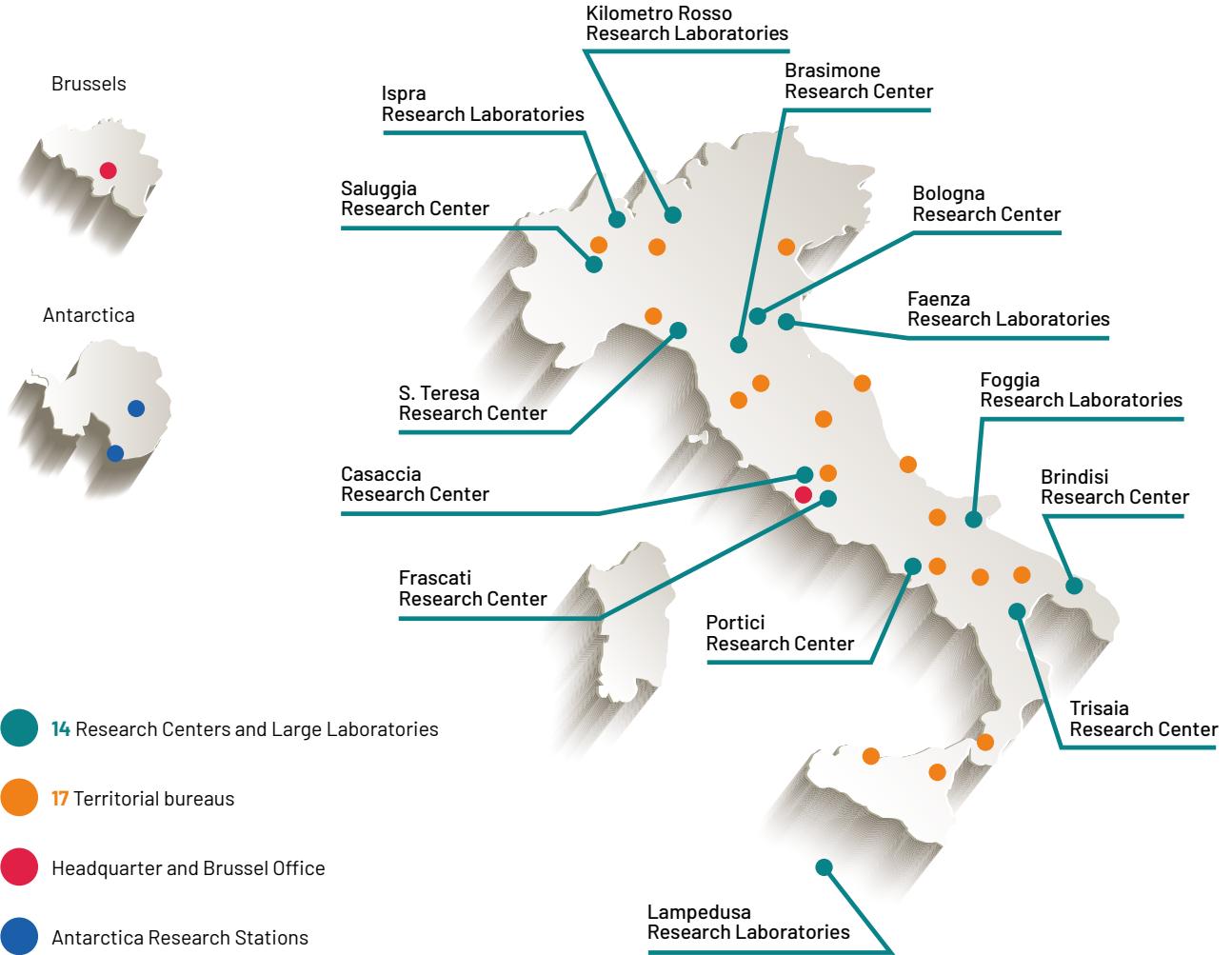


**ENERGY  
EFFICIENCY**



**TECHNOLOGY  
TRANSFER**

# Where we are



## Facts and figures about ENEA

**+600**

Collaborations with companies

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**+20.000**

Industrial sector employees involved

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**+900**

Registered patents

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**+100**

Framework agreements and partnerships with universities

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**+160**

Projects financed by the European Union (to 2023)

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**+40**

Projects for development cooperation



**60**

years of research and innovation



**2250**

people



**14**

research centers



**17**

territorial bureaus



**8**

technical and administrative directorates



**4**

departments



## What we do

We do applied research in all **energy sectors** (renewables, storage, sustainable mobility, hydrogen, smart cities, energy communities), including nuclear power.

**As National Agency for Energy Efficiency**, ENEA also promotes the efficient use of energy in Italy.

Other **relevant areas of research are: climate change, the circular economy, cultural heritage, food safety, biotechnology, critical raw materials redevelopment of industrial areas and urban regeneration.**

ENEA state-of-the-art instrumentation and advanced technical services with dedicated consultants are available to Italy's public administration and productive sectors. We can also help them access to EU funding programmes and partnerships, as well as an extensive network of collaborations at national and international level.





## How we operate

Our research activities are carried out in **four Departments:**

- Energy Technologies and Renewable Sources;
- Nuclear;
- Sustainability and Climate Change Adaptation of Production and Territorial Systems;
- Energy Efficiency.

The exploitation of our research results by enterprises, organizations and PA is promoted by the Technology Transfer Directorate.

The management and coordination of ENEA's activities/resources is the responsibility of the *General Director*, who ensures the achievement of the objectives defined in the Agency's mission and sets out its strategies; the director ensures the implementation of the resolutions of the Governing Board and of the measures adopted by the President.

## Energy Technologies and renewable sources

The Department researches materials, technologies, components, systems and processes for the **decarbonisation of the energy system**, pursuing the objectives of **environmental, social, technical and economic sustainability**. In particular, activities are focussed on renewable energy sources and vectors, energy production, transport, storage and distribution, consumption optimisation, and the integration of enabling technologies for the digital transition.

The department carries out technology qualification, **assessment** and **analysis** of methodologies and processes, development and characterization of materials; the **design, implementation** and **testing** of prototype plants, with the aim of **providing advanced technical services** and the **transfer of technologies** and **knowledge** to industry.



**500**  
People



**6**  
Technical  
divisions



**18**  
Research  
laboratories

### The Department's main research areas are:

- Bioenergy, biorefinery and green chemistry
- Hydrogen and new energy vectors
- Storage
- Sustainable mobility and transport
- High-performance scientific computing
- Solar photovoltaics
- Critical infrastructures and energy communities
- Smart sector integration and distributed generation from renewable energy sources
- Enabling technologies for the digital transition





## Nuclear

The Department designs and develops **components** and **experimental plants** for **new-generation reactors**, as well as new applications in areas such as the diagnostics and **conservation of cultural heritage**, security technologies and the **prevention of terrorist attacks**.

The Frascati Research Centre is currently building the **DTT, Divertor Tokamak Test**, an experimental facility that will help provide solutions to some critical problems that may hinder the development of **nuclear fusion**.

Concerning nuclear fusion, ENEA represents Italy in EUROfusion, the European Consortium that manages the economic resources made available by the European Union for the research and development activities of the European fusion programme. ENEA also acts as Industrial Liaison Officer for Fusion for Energy, the European Agency that manages the community resources for the realisation of **ITER**, the largest scientific experiment, called for and promoted by

the European Union, to demonstrate the feasibility of a fusion reactor.

### The Department's main areas of research are:

- Plasma physics
- Fusion energy development
- Experimental Engineering
- Radiation systems and applications
- Nuclear energy systems
- Physical Technologies and Safety



**500**  
People



**6**  
Technical  
divisions



**19**  
Research  
laboratories

# Sustainability and Climate Change Adaptation of Production and Territorial Systems

The **Department** contributes to valorization of natural economic, and social capital through **cross-sectoral** and **interdisciplinary** approach.

In this context the areas of interest are: efficient use of **resources and closing cycles**, contrasting and adapting to **climate change, meteo-climatic** and **ecosystem services**, reducing the impacts of **anthropogenic and natural hazards**, innovative and sustainable materials for non-energy applications, quality, safety and traceability of **agro-industrial production, precision** and **4.0 agriculture**, circular bio-economy, red and green **biotechnologies**, nature based solutions.

Other important areas are: **critical raw materials, ecodesign, sustainable industrial areas, urban regeneration** and social



**500**  
People



**6**  
Technical  
divisions



**16**  
Research  
laboratories

innovation, **sustainable tourism**, enhancing **cultural heritage**.

**The Department's main research areas are:**

- Circular economy
- Technologies and materials for sustainable manufacturing industry
- Models, observations and scenarios for climate change and air quality
- Anthropogenic and climate change impacts on the territory
- Sustainable agri-food systems
- Biotechnology
- Integrated and nature-based solutions for urban regeneration
- ICESP (Italian Circular Economy Stakeholder Platform) Coordinationsustainability





## Energy Efficiency Unit

The **Energy Efficiency Unit Department** carries out the functions assigned to ENEA as National Energy Efficiency Agency, the Italian reference institution for the **promotion of energy efficiency**.

Its role is to support the country in achieving Italy's **decarbonisation** targets by improving **energy end-use** efficiency, in compliance with the EU directives.

The main activities include the technical and scientific support to **public administration** and **economic sector operators** for improving energy efficiency, **information and communication** services aimed at creating an **energy culture** among citizens, and the qualification of new professional skills related to **green jobs** in the energy efficiency sector.

The Department has also developed tools and methodologies for implementing energy efficiency projects through public-private partnerships with the Italian Ministry of

the Environment and Energy Security, the Regions, and central and local PA.

### The Department's main research areas concern:

- Digital applications for energy efficiency in PA
- Energy efficiency in economic sectors
- Energy efficiency policy monitoring
- Improvement of energy efficiency in urban development buildings and production processes
- Programmatic activities for energy efficiency
- Integrated services for territorial development
- Information and training campaigns



**156**  
People



**2**  
Technical  
divisions



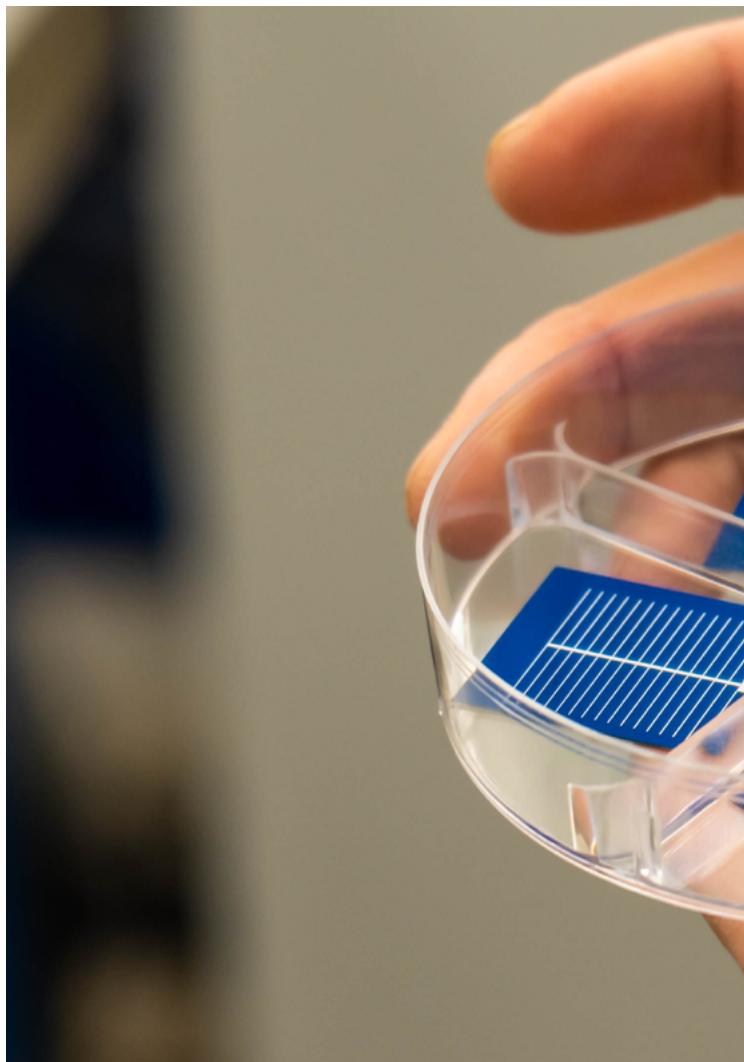
**10**  
Research  
laboratories

## Technology Transfer

The **Technology Transfer Division** promotes technology transfer from the laboratories to civil society, through partnerships, agreements, patents, digital platforms and high-tech services, as a means for achieving Italy's sustainable economic development.

### Main activities include:

- Patent database
- Spin-off support service
- Proof of Concept Fund for the development of joint enterprise-ENEA research projects
- Knowledge Exchange Program (KEP) to strengthen technology and innovation transfer through partnerships with companies and associations





*Investing in research means investing in our future*





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