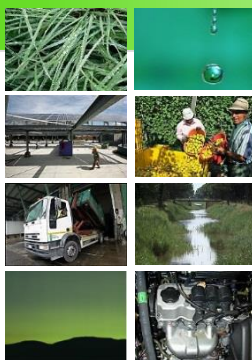


Invest in GREEN ECONOMY in Emilia-Romagna

Published in July 2017

The green economy in Emilia-Romagna is a cross-sector that is proving to be more and more of a resource to our region and an opportunity for new investments.

The green economy comprises both «what is produced» and «how it is produced». Those who invest in the region will find a whole world of companies, ranging from manufacturing to services, which are turning environmental sustainability into a driver that combines ethics with competitiveness on international markets.



Green economy sectors

The companies belonging to the green economy in Emilia-Romagna represent a diverse range of activity sectors crossing into the main clusters of the region. Some examples are the processors of organic food products and the technology used in various ways in the **agro-food** cluster, companies that work in the bio-building in the **construction** cluster, transports with a low environmental impact in the **automotive** field. In addition, there are **more general sectors** such as the research of new materials and the supply of machinery as well as newly **emerging sectors** such as renewable energy and energy efficiency. On the other hand, **traditionally «green» sectors** are represented by waste management and water treatment. Regarding **services**, those incorporating environmental certification also play an important role.

Green economy and technological innovation

Research and Innovation are among the factors largely leading the green economy in Emilia-Romagna. A substantial number of **laboratories from the regional High Technology Network** work in the research fields which are more or less directly connected to the green economy. These structures are also part of the **various thematic Technological Platforms: Energy and Environment, Agro-food, Mechanics and Materials, Constructions, Life Sciences, ICT and Design**. The laboratories of the network collaborate with regional companies and help to support «green» innovation in production, along with the **“Clust-ER” associations**, communities of public and private actors, including research centres, companies and training institutes. **Universities** and the **higher education system** provide qualified human resources to regional companies.

A green region

The supply of renewable energy in the region meets the growing demand of the production system and represents 11.8% of the total. Moreover, there are **33,000 regional companies investing in environmental products and technologies** in the period 2010-16. The rate of companies with environmental certifications is higher than the national average. Moreover, there are 7,000 accredited energy certifiers in the region in 2015. The new **regional law for the promotion of the investments** (14/2014) supports **environmental protection and energy saving**.

LEADING FACTORS

- 2,633 regional companies in green economy sectors (2017)
- 33,000 regional companies investing in environmental products and technologies (2010-16)
- High Technology Network working on green issues
- International trade fairs on green themes
- Renewable energy sources represent 11.8% of the total
- The regional law for the promotion of investments (14/2014) supports environmental sustainability

SOME COMPANIES OF THE REGION

Agro-industry



Waste and reclamation



Building



Water cycle



Energy



Transport

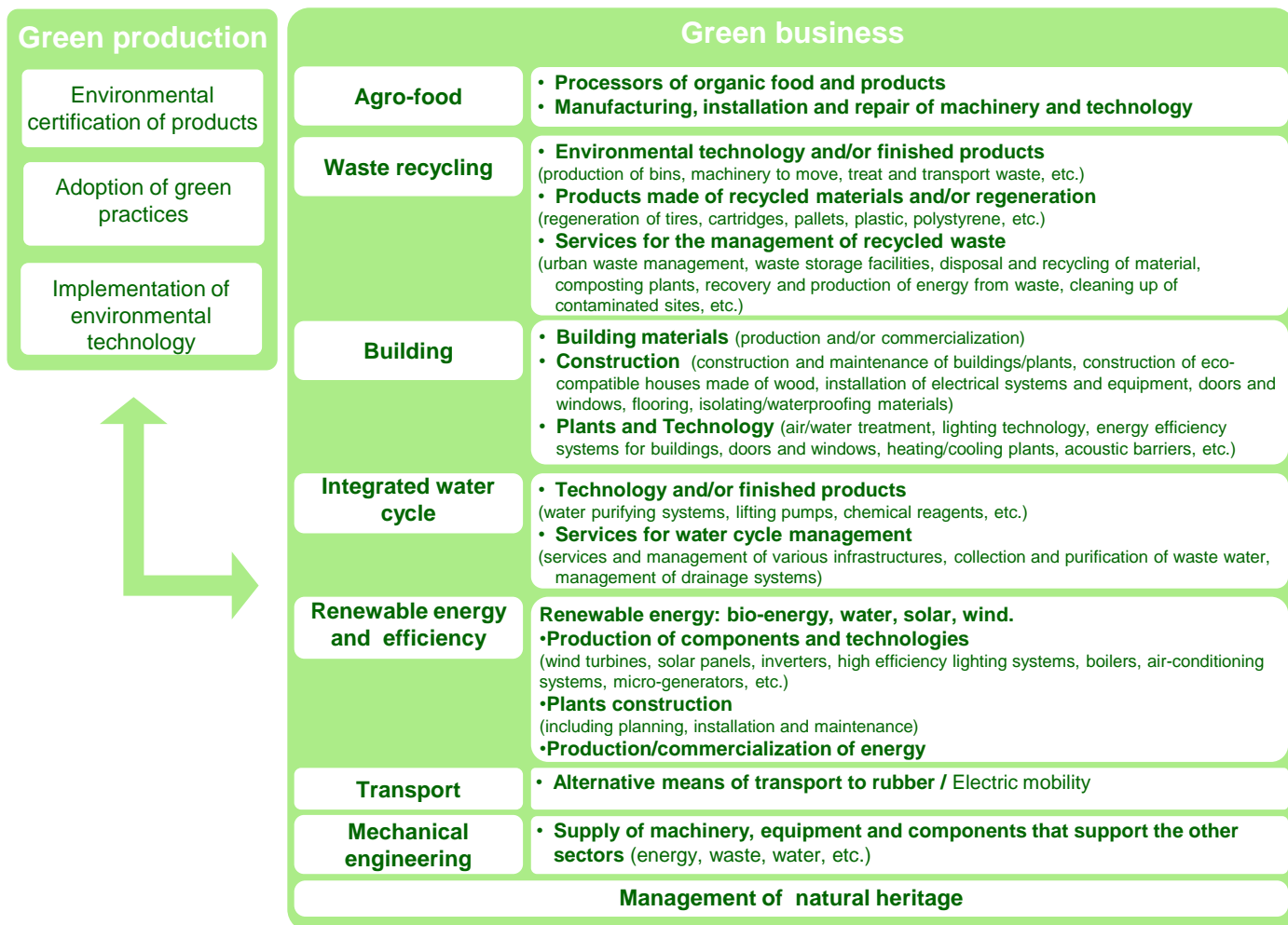




Regional green economy: framework and sectors

Companies become part of the green economy universe both for “how they produce” (Green Production), as well as “what they produce” (Green Business).

Green Production is mainly recognized through the tool of environmental voluntary certification. With regard to the **Green Business**, we can distinguish between companies which merely **operate in environmental markets** (waste management, integrated water cycle, sustainable transport, management of natural heritage) and those which are only **partially oriented towards green markets** (bio-building, organic agro-food products, energy efficiency and renewable energy, environmental technology).

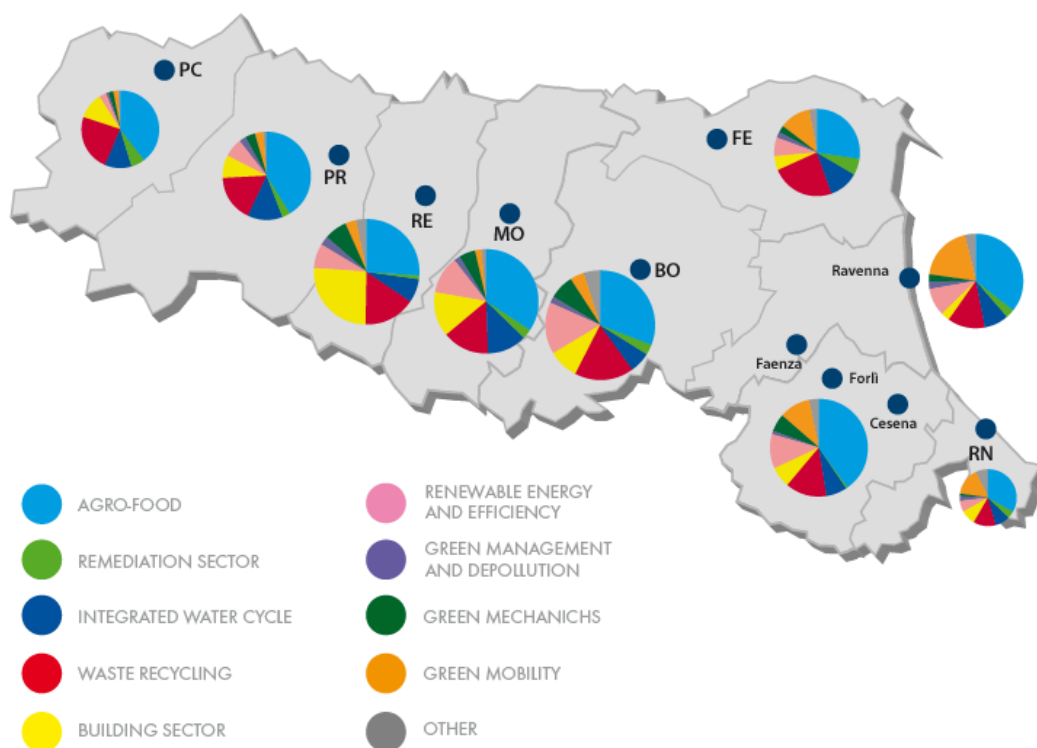


Companies - Source: GreenER, ERVET Green Economy Observatory, 2017

Sector	Companies	% of total
Agro-food (including processors of organic products)	1,013	38.5
Waste recycling	355	13.5
Sustainable building	250	9.5
Renewable energy and efficiency	246	9.3
Integrated water cycle	196	7.4
Green mobility	163	6.2
Green mechanical engineering	124	4.7
Green areas management and depollution	121	4.6
Remediation sector	75	2.8
Other (environmental certification, adoption of green practices, implementation of environmental technology)	90	3.4
Total regional Green Economy	2,633	100%

Regional green economy: geographic coverage

Source: ERVET - GreenER



Areas with high concentration of green companies

Agro-industry

High concentration of companies in the area of the city of Bologna followed by Modena, Parma and Forli-Cesena. Agro-food is the leading green sector in all regional provinces.

Waste management and Reclamation of polluted sites

High concentration of companies in the province of Bologna, followed by Modena, Reggio Emilia and Ferrara.

Sustainable building

High concentration of companies in Reggio Emilia, followed by Modena (mainly from the ceramic industry) and Bologna.

Regional law for the promotion of investments n.14/2014

Focus on green economy issues

The “Regional Law no.14/2014 for the Promotion of Investments in Emilia-Romagna aims to make the economic system more attractive to national and foreign investors.

The main tool provided by the law is the “**Agreement for the Settlement and Development of Companies**” to be signed by the Regional government, the investor (single company or grouping), local bodies and other stakeholders involved in the investment. The agreement specifies the incentives provided, the timing of procedures and completion of the investment, the employment impact, the transport and digital infrastructure and welfare services provided in relation to the investment.

Evaluation criteria for the selection of the investments include **environmental and social sustainability** (energy efficiency, reduction of emissions, worker safety, etc.). To support land use reduction, companies investing in brownfield sites and Ecologically Equipped Business Parks (APEA) can get a reduction of construction fees and procedures.

Categories of aid include ‘environmental protection and energy saving’, supporting investments in: energy efficiency, high efficiency co-generation, energy production from renewable sources, remote heating and cooling, recycling and reuse of waste. Moreover, for companies with environmental certifications (EMAS, ISO 14001), the regulation provides reduction (25-15%) of preliminary expenses for the release of environmental authorizations (AIA).

Research and Innovation

High Technology Network (HTN) - Platforms and laboratories for the green economywww.retealtatecnologia.it

The 'Energy and Environment' platform of the network is directly related to green economy research areas.

Energy and Environment Platform**APM** - www.apmlab.com

Advanced Polymer Materials

CIDEA - www.cidea.unipr.it

Interdepartmental Center for Energy and Environment

CIRI ENERGIA AMBIENTE - www.energia-ambiente.unibo.it

Interdepartmental Center for Industrial Research in Energy and Environment

CRPA LAB - <http://crpalab.crpa.it>

Industrial research for agrofood, environment and energy

GRUPPO CSA - <http://www.csaricerche.com>

Environmental advisory, Food safety and quality

LEA - <http://www.lea.enea.it>

Enea Environment Laboratory

LAERTE - www.laerte.enea.it

Energy efficiency and safety

LEAP - www.leap.polimi.it/

Energy and Environment Laboratory Piacenza

NIERING - www.niering.it

Energy efficacy and efficiency; Environmental protection and sustainable development

PROAMBIENTE - www.consorzioproambiente.it

Environmental Controls and Remediation

RAW POWER - www.rawpowergroup.it

Electric Motors & Generators

TerraAcquaTech - www.unife.it/tecnopolo/tat/home-1

Recovery and valorization of environmental resources, integrated water cycle

Many other laboratories of the HTN carry out research activities related to green economy areas, such as: LCA, environmental sustainability, energy efficiency, green mobility, green packaging, environmental impact, optimization of manufacturing processes, sustainable buildings and materials, waste treatment, green IT, biodiversity, etc. The following list is not exhaustive, **for more information please consult the regional Research Catalogue:** <http://tools.retealtatecnologia.it/catalogo?lang=en>

Agro-food Platform**BioDNA** - <http://centridiricerca.unicatt.it/biodna>

Biodiversity and Ancient DNA Research Centre

BIOGEST-SITEIA - www.biogest-siteia.unimore.it

Interdepartmental Centre for Agri-food Biological Resources Improvement and Valorisation

CIPACK - www.cipack.it

Interdepartmental Center for Packaging

CIRI AGROALIMENTARE - www.agroalimentare.unibo.it

Interdepartmental Centre of Industrial Agrifood Research

CNR-IMAMOTER www.imamoter.cnr.it/index.php?lang=en

Institute for Agricultural and Earthmoving Machines

CRAST - <http://centridiricerca.unicatt.it/crast>

Centre for Research into Geospatial Analysis and Remote Sensing

SSICA - <http://www.ssica.it/index.php?lang=en>

Experimental Station for the Food Preserving Industry

REDOX <http://www.redoxprogetti.it/defaulten.html>

Power electronic design.

RINNOVA - <http://www.rinnova.org/eng/>

Design management, energy efficiency, mobility, LCA, Green IT

Mechanics and Materials Platform**CIRI AERONAUTICA** - www.aeronautica.unibo.it

Interdepartmental Center for Industrial Research in the fields of aeronautics, energy systems and other areas.

CIRI MECCANICA AVANZATA e MATERIALI (Advanced mechanics and Materials) - <http://www.mam.unibo.it/en>

Interdepartmental Center for Industrial Research in the field of mechanical engineering and materials technology (e.g.: sustainable energy, green IT)

ENEA – TEMAF - <http://www.enea.it/en/faenza-laboratories>

ENEA Laboratory of Materials Technologies Faenza (e.g.: sustainable mobility and energy, energy efficiency)

Highftech Engineering - <http://www.highftech.com>

R&D in high technology sectors such as: automotive, aerospace, materials (e.g.: LCA, energy efficiency)

INTERMECH-Mo.Re. - www.intermech.unimore.it/

Interdepartmental Center for Applied Research in the field of advanced mechanical engineering and automotive (e.g.: sustainable energy and mobility, energy efficiency, green IT)

MIST E-R - www.laboratoriomister.it

Micro and Sub-micro Enabling Technologies (e.g.: green IT)

MECH-LAV - www.unife.it/tecnopolo/mechlav

Advanced Mechanical Engineering (e.g.: optimization of energy consumption in manufacturing processes)

MUSP - www.musp.it

Machine Tools and Manufacturing Systems (e.g.: optimization of energy consumption in manufacturing processes)

R&D CFD - <http://www.red-cfd.it>

R&D Computational Fluid Dynamics (e.g.: sustainable mobility)

REI - www.reinnova.it

Reggio Emilia Innovation (e.g.: green IT)

T3 LAB - <http://www.t3lab.it>

Technology Transfer for business innovation and competitiveness (e.g.: green IT)

TRACCIABILITÀ (Traceability) - www.tracciabilita.enea.it

Food traceability and Air safety (e.g.: sustainable energy in technologies and manufacturing systems)

TRLab

Test & Research (e.g.: sustainable mobility)

Construction industry Platform**CENTRO CERAMICO** (Ceramic center) - www.cencerbo.it

LCA, environmental analysis, authorizations and certifications.

CertiMaC - www.certimac.it/Default.cfm?lingua=EN

Building Materials Testing Laboratory

CIRI Edilizia e costruzioni - www.edilizia-costruzioni.unibo.it/

Interdepartmental Centre for Industrial Research in the field of constructions (sustainable buildings, energy and mobility)

EN&TECH - www.enetech.unimore.it

Energy efficiency in buildings, eco-design, LCA

LARCOICOS - www.larcoicos.it/

Research and Technology Transfer in the field of constructions (high performance building, energy efficiency, tools and methods for sustainability)

TEKNEHUB - www.teknehub.it

Methods, materials and skills related to cultural heritage (high performance buildings, energy efficiency, green IT)

ICT and Design**CIRI ICT** - www.ciri-ict.unibo.it/en

Green ICT and ICT for sustainable development.

CROSS-TEC - <http://www.cross-tec.enea.it>

ICT for energy efficiency

INFN TLab - <https://www.cnaf.infn.it/en/>



Green IT

International Trade Fairs

ENVIRONMENT

	ECOMONDO www.ecomondo.com	The Green Technology Expo - International Trade Fair of Material and Energy Recovery and Sustainable Development held at the Rimini Trade Fair site. Commodity sectors: Waste Treatment; Recycling and Services; Collection and Transport; Treatment, recovery and demolition of inert waste; Decontamination; Air and Water. The fair received over 105,000 visitors and hosted 1,200 exhibitors in the 2016 edition. The figures include those of the KEY ENERGY that take place at the same time as ECOMONDO.
	KEY ENERGY www.keyenergy.it	KEY ENERGY - International expo for Sustainable Energy and Mobility. Commodity sectors: production of energy from the following renewable sources: Biofuels, Biogas, Biomass, Photovoltaic & Solar heat, Mini – Wind power. From alternative sources: Use of waste as an energy source. Energy saving and efficiency including Cogeneration; Sustainable Mobility.
	H2O – ACCADUEO www.accadueo.com	International exhibition of technologies for the treatment and distribution of drinking water and wastewater treatment , held in Bologna. The 2016 edition hosted 329 exhibitors.
	REMTECH www.remtechexpo.com	Remediation Technologies , exhibition on the remediation of contaminated sites and the requalification of territory. The fair received 5,500 visitors and hosted 230 exhibitors in the 2016 edition.


BUILDING

	CERSAIE www.cersaie.it	International exhibition of ceramics for architecture and bathroom sanitaryware , held at the Bologna Trade Fair site. 176,000 m ² of exhibition space with 852 exhibitors and over 106,000 visitors, of which 50,000 were foreign (Data 2016).
	SAIE www.saie.bolognafiere.it	International building exhibition , held at the Bologna Trade Fair site every two years, with a focus on renewable energy and low energy consumption technology for sustainable construction. In 2016 it hosted 1,000 exhibitors and received 50,000 visitors.

AGRO-FOOD

	CIBUS www.cibus.it	Cibus – International Food Fair held at the Parma Trade Fair site. The 2016 edition hosted 3,000 exhibiting companies, 72,000 visitors, 16,000 foreign operators and 2,200 top buyer from the sector. The fair gives good exposure to organic products.
	SANA www.sana.it	SANA – International exhibition of organic and natural products: food, health, environment, held at the Bologna Trade Fair site. The 2016 edition received 47,221 visitors and 833 exhibitors.

RESEARCH & DEVELOPMENT

	RESEARCH TO BUSINESS www.rdueb.it	International Exhibition on Industrial Research held at the Bologna Trade Fair site – A meeting point between Research and Business including several links with green economy sectors. The 2016 edition received 6,127 visitors.
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Foreign investors

Some important foreign investors in the Green Economy in Emilia-Romagna - Source: Aida - Bureau Van Dijk, 2016

Company	Investor	Country of Origin	Type of business (Nace code)	Why they are considered GREEN
TETRA PAK ITALIANA	TETRA LAVAL HOLDINGS B.V.	Holland	Repair of machinery for dosage, packaging and packing. Manufacture of containers of paper and paperboard	Fully renewable package, the Tetra Rex® Bio-based package. Green practices in production processes. Monitoring of environmental impact. Member of Sedex (Supplier Ethical Data Exchange) since 2010
MANITOU COSTRUZIONI INDUSTRIALI	MANITOU BF SA	France	Manufacture of lifting and handling equipment	Production of technologies that involve green markets and practices (e.g. refuse, building)
WIENERBERGER S.P.A.	WIENERBERGER AG	Austria	Manufacture of bricks, tiles and construction products, in baked clay	Building materials compatible with green certifications (e.g.: LEED). Yearly informative reports on sustainability performance monitoring the impact of the whole value chain
TECHIMP HQ	TECHIMP GROUP LIMITED	UK	Manufacture of other electrical equipment	Products for efficient management of electric energy (e.g. smart grids)

Services available to the green economy

Higher Education

Degree courses

dealing with environmental sustainability

University of Bologna - www.unibo.it

Faculty of economics, management and statistics

- Resource economics and sustainable development
- Economics and management

Faculty of Agriculture

- Territorial and agro-forestry environmental science
- Planning and management of agro-land, forestry and landscape ecosystems
- Ornamental plants and landscape protection
- Marketing and Economics of the agro-industrial system
- Agricultural Sciences and Technologies
- Food Sciences and Technologies
- International Horticultural Science

Faculty of Engineering

- Land and Environmental Engineering
- Energy Engineering

Faculty of Sciences

- Chemistry and technology related to the environment and materials
- Molecular and Industrial biotechnology
- Environmental Sciences
- Biodiversity and evolution

Faculty of Political Science

- Local and global development

University of Modena and Reggio Emilia - www.unimore.it

Faculty of Mathematical, Physical and Natural Sciences

- Natural sciences
- Biotechnologies
- Scienze e tecnologie agrarie degli alimenti
- Land and Environmental Engineering

University of Ferrara - www.unife.it

- Economics, marketing and management (focus Green Economy)
- Civil and Environmental Engineering
- Biotechnologies for environment and health

University of Parma - www.unipr.it

Chemistry, Life and Environmental sustainability

- Biotechnologies
- Industrial chemistry
- Ecology and nature conservation
- Science and technology for environment and resources

Food and Drug

- Food sciences and technologies

Economics and Management

- Food system: management, sustainability and technologies

Engineering

- Environmental and civil engineering

Masters

University of Bologna - www.unibo.it

- Bioeconomy in the Circular Economy (BIOCIRCE)
- Ornamental plants protection for eco-sustainable design and productions
- rECONstruction. Multidisciplinary project to re-build the resilient city
- Energy management

University of Modena and Reggio Emilia - www.unimore.it

- Chemicals management – REACH and CLP
- Food innovation

University of Parma - www.unipr.it

- Management and conservation of environment and fauna
- Food technologies

Agencies and Associations

ERVET Economic development and Environment Unit
ERVET is the Emilia-Romagna regional development agency. Among its various services, it manages the following activities:

- GreenER – green economy observatory of the Emilia-Romagna Region –

<http://imprese.regione.emilia-romagna.it/green-economy/temi/osservatorio-greener> (in Italian)

It monitors the quantitative and qualitative characterization of the green economy within the region, manages a database of the regional green companies and produces reports and analyses useful for understanding the potential of the green sector and for addressing regional policies on this matter.

- Tecnologie Pulite (Clean Technologies)

www.tecnologiepulite.it/ (in Italian)

The website includes best practices and a «showcase window» for suppliers of environmental technologies where companies can promote products and find partnerships.

- Cartesio Network www.retecartesio.it (in Italian)

The network operates on an inter-regional level and aims at researching and coming up with collective solutions on topics that interest and involve both private and public organizations.

Clust-ER Energy and Sustainable Development www.retealtatecnologia.it/clust-er/energia-e-sviluppo-sostenibile

“Clust-ER” are communities of public and private actors, including research centres, companies and training institutes, sharing resources to support the most relevant manufacturing systems in Emilia-Romagna.

CISE (Centre for Innovation and Economic Development) Forlì-Cesena - www.ciseonweb.it (in Italian)

CISE is a Special Agency of the Chamber of Commerce in Forlì-Cesena. The Environmental Area deals with dissemination of knowledge and social responsibility and implementation of environmental management systems.

ARPAE Regional Agency for Prevention, Environment and Energy of Emilia-Romagna www.arpae.it (in Italian)

Activities: Environmental control and surveillance, Monitoring, Laboratory analysis, Authorizations and concessions

AESS Agency for energy and sustainable development

www.aess-modena.it/

AESS is primarily involved in the promotion of renewable energy sources, energy efficiency and reduction of energy consumption among Local Authorities, SMEs, schools and consumers

Invest in GREEN ECONOMY in Emilia-Romagna

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