CESI
Shaping a Better Energy Future

Cesi Group
Company Profile

KEMA Labs ISMES IPH BERLIN FGH ISTEDIL EnerNex

History of the Group

1956

Established in 1956, since the beginning CESI has been an important player in testing, certification of electromechanical equipment and electrical power system studies offering its services to electrical utilities, electro-mechanical and electronic manufacturers, large-scale users of electric power.

2000

Since 2000, CESI has enlarged its fields of activity covering all sectors in the electro-energy fields from generation, to transmission, distribution, end-use of electricity, as well as environment and renewable energies. Now CESI is a global power consultant offering its services world-wide.

2004

In October 2004 CESI took over ISMES, a Company that enables CESI to expand the range of services by working in the fields of environmental risk, design support and structural assessment on buildings and structures, with tests and studies on mechanical and industrial components.

2005

Through the acquisition, in 2005, of IPH (Berlin) and FGH (Mannheim), CESI becomes leader on the international market of electric equipment testing. CESI role has been further strengthened through the recent acquisition of KEMA Labs.

2012

In 2012 and 2013 CESI opened their regional headquarters in the United Arab Emirates and Brazil, enhancing the effectiveness and responsiveness in these areas, symptomatic of a long term commitment to these important, dynamic and highly attractive regions. Recently CESI opened a regional headquarters in Washington DC too with the aim of entering the US market and strengthen its presence at global level even more.

2018

After the acquisition of the U.S. company EnerNex in 2018, the portfolio of activities concerning engineering and power system consulting services offered by CESI has been extended. EnerNex is a leading U.S. electric power engineering and consulting firm that provides top-quality services in grid modernization, cybersecurity, and power systems consulting. The combination of CESI and EnerNex portfolios bolsters planning, implementing, and operating power assets and electric infrastructures, offering to our clients a one-stop-shop solution for all their needs related to energy transition challenges.

Our Offices

CESI-Centro Elettrotecnico Sperimentale Italiano Giacinto Motta S.p.A.
Headquarters:
Via Rubattino 54,
20134 Milan – Italia

Other Locations:
Piacenza - Italia,
Seriate – Italy

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Dubai Airport Free zone
Dubai - UAE

CESI do Brasil Consultoria Ltda.
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Centro Rio de Janeiro
CEP 20011-000, Brazil

CESI USA Inc.
2200 Pennsylvania Ave NW,
4th Floor East Tower
Washington DC 20037, USA

Enernex
620 Mabry Hood Road
Suite 300, Knoxville, TN 3793

IPH Institut "Prüffeld für elektrische Hochleistungstechnik" GmbH
Landsberger Allee 378a,
12681 Berlin, Germany.

FGH Engineering & Test GmbH
Hallenweg 40, 68219
Mannheim, Germany

KEMA Labs
Klingelbeekseweg 195 6812
DE Arnhem, The Netherlands

Human resources and Turnover

CESI is employing about 500 people. All the professional staff currently speaks English, part of it speaks French and Spanish, some of personnel speaks Russian, Slav, Portuguese and Albanian languages.

	2014	2015	2016	2017	2018	2019
Average manpower	489	485	480	489	499	497
Annual turnover	90,1 M€	93,8 M€	84.2 M€	91.2 M€	93.2 M€	110.8 M€

Official acknowledgements and accreditation

Certificate of conformity to ISO 9001: 2008 and OHSAS 18001:2007 issued by SGS, the Systems and Services Certification

This certificate refers to the whole Company concerning its activities performed mainly in the field of energy, electrical power, electronics, information technology, environment, space applications, geotechnical and territory engineering, prevention and monitoring of natural risks and civil structures. The services are and related to:

- analysis, testing, measurements, diagnostics, test-runs, qualification, inspection, audit and certification of products, equipment and systems, technical consulting and assistance, education and training
- Basic and applied research
- Design, engineering, supply and operation of plants and laboratories, testing facilities, special machinery and components, systems for measurement, control, computing, monitoring and diagnostic, development and application of tailored software, development and application of advanced technologies.

As testing body CESI is accredited by ACCREDIA, the Italian member of EA (European Accreditation Organisation) and DATech, both signatory of the multilateral agreement of EA and ILAC for the mutual recognition. Testing Laboratory also operates in accordance with the IECEx Scheme rules and procedures. As certification body is accredited by SINCERT, the Italian member of EA (European Accreditation Organisation) and a signatory of the multilateral agreement of EA and IAF for the mutual recognition. It also operates as Certification body in accordance with the IECEx Scheme rules and procedures.

The Company Organisation

Our markets

CESI has been operating world-wide; has a marketing network in about 40 countries offering its services to:

- Electrical Utilities (production, transmission and distribution)
- Independent System Operators (ISO)
- Regulation Authorities
- Electromechanical and Electronic Manufacturers
- Industrial Users
- Public Administrations
- International Financial Institutions.

The services

CESI activities cover, apart from erection, the whole cycle of a project i.e: feasibility, design, commissioning, operation and disposal. The offer concerns:

- techno-economic studies on networks, systems, plants and components
- consulting and specialised diagnostic and maintenance interventions
- plant and component life assessment / life extension studies
- management and training procedures and tools
- qualification tests, component, system and plant certification
- supply of testing laboratories, special components
- environmental studies and services: monitoring and assessments, design and realisations, structure engineering, technology developments

Feasibility & preliminary design of *green field* bulk power generation, renewable energy and Combined Heat & Power plants:

- regulation & market scenarios
- valuation of financial & economic performances
- consulting on necessary authorisations and relevant procedures
- basic design of the plant
- Site evaluation & selection
  - environmental impact studies up to authorisations
  - assessment of primary energy sources and water availability
  - network access and system reliability impact studies
- Preparation of tender documents, bid evaluation and assistance during construction and start-up

Support to acquisition of existing power plants/companies

- regulation & market scenarios
  - valuation of financial & economic performances
- technical evaluation of the fixed assets of plants and infrastructures
  - Analysis of plant documents
  - Inspections and audits on site
  - Evaluation of the physical degradation
  - Valuation of cost of replacement/ reproduction new plant refurnishment scenarios

Services for Electric Utilities

Power Producers

Operation planning

- optimum generation (active power) dispatching

Refurbishment for improving flexibility and availability

- enhanced control & automation

Energy Management & Energy Trading

- short and medium term scheduling
- price forecasting
- evaluation of bidding strategies

Operation & Maintenance

- optimization & supervision
- on-line monitoring
- component check-up during scheduled or forced shut-downs
- component integrity, fitness-for service and life assessment
  (boiler, steam lines, turbine, generator, BOP)
- life extension of serviced components (boiler, steam lines,
  turbine, generator, BOP)
- reliability analysis and risk-based maintenance optimisation

Environmental management

Know how transfer

- organisation and management
- technical issues
- SW supply

Transmission Companies

System planning

- modelling & simulation of the market
- medium and long term expansion plans
- technical, economical/financial analysis of new projects

- feasibility studies (i.e. interconnection links, impact of new technologies - FACTS, Voltage sources converters etc.)
- integration of new power plants;
- system reliability impact
- environmental impact

Preliminary design, design review

- steady state and dynamic performance analysis
- protection, control & automation
- insulation co-ordination
- equipment specifications (electro-mechanical & power electronic devices)
- Preparation of tender documents, bid evaluation

Acceptance tests & commissioning

Asset management

Environmental management

System operation

- evaluation of steady-state and dynamic system performances
  - defence and restoration plans
  - protection co-ordination
  - optimum reactive power dispatching
  - network congestion management
- on-line system operation support
  - congestion removal
  - real time energy balancing
- short time load forecast
- energy transaction measuring & reconciliation systems
- power quality measuring & assessment
- costing assessment & pricing
- fault reconstruction & failure analysis

Know how transfer

- organisation and management
- technical issues
- SW supply

Distribution Companies

CESI covers the whole chain of a Smart Distribution Network. In particular, CESI activities can be divided in the following three key segments:

Metering Infrastructure

Advanced metering, which allows the characterization of customer's information, such as consumptions, and their communication back to the local utility, thus allowing immediate operative savings, is a key enabling infrastructure to develop advanced customer oriented applications, including in-home devices, and demand response programs.

In that field, CESI services provide a full range of services to help operators during the implementation of Smart Metering project:

- Advanced metering infrastructure
- Communication network
- Field simulation and pilots
- Data management systems
- Interoperability of meters and concentrators
- Metrological verification
- Electromagnetic compatibility
- Customer interfaces
- Environmental assessment

CESI has a specific experience in Metering projects implemented on a PLC communication.

Distribution Network Automation

With Distribution automation we intend all the applications aimed to enhance the capability of the network to react autonomously to unexpected external events, allowing immediate operative savings for the distribution system operator.

In that field, our services are aimed to support the operators to implement innovative solutions oriented to:

- Automatically identify and restore network faults
- Regulate voltage, in particular in presence of distributed resources
- Implement neutral hearting through the installation of mobile Petersen coils
- Optimize the distribution protection system
- Environmental assessment

Integration of Distributed Resources

A high penetration of distributed Resources, such as Renewable Generators, storage systems and, in the near future, Electric Vehicles, requires a drastic change in the distribution network planning and operation.

In that field, we provide both Investors and Network Operators oriented services. The formers, aimed to study the most appropriate network connection of distributed generation into the grid; the latter, focused in providing support in the evaluation of the impact of such penetrations, as well as solutions for their efficient control.

Our field of expertise covers the following issue:

- Regulatory framework
- Components assessment and components verification
- Distributed generators and grid connections
- Storages systems
- Electric Vehicles (EVH)
- Communication infrastructure between the grid supervision and control system and distributed resources
- Power system planning and modelling
- Power system security and stability
- Distribution management System (DMS)
- Environmental assessment
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Other CESI services for Power Distributions are:

- Regulation, market & tariffs scenarios
- Network planning
  - Demand side analysis
  - technical, economical/financial analysis of development plans
  - environmental impact evaluation
  - distributed generation
  - rural distribution

Conceptual design

- performance analysis & loss reduction
- impact of distributed generation on network scheme and operation

System automation

- SCADA
- remote control
- signalling & tele-metering

Operation

- evaluation of system performances
- protection relay selection & co-ordination
- power quality & custom power
  - congestion removal
  - real time energy balancing
- fault location procedures
- failure analysis & diagnostics

Load management and energy saving

Environmental management

Know how transfer

- organisation and management
- technical issues
- tariffs & billing procedures
- SW supply

Services for Industrial Plants

Energy management

- co-generation plants
- distributed generation
- energy saving: electrical innovative technologies

Feasibility & preliminary design (generation, steam & electrical network)

- technical-economic evaluations
- environmental impact evaluation
- basic & Owner engineering

Environmental management

- water, air, soil, noise and EMF

Safety & electrical risk

Energy trading

Operation & Maintenance

- optimization & supervision
- on-line monitoring
- component check-up during scheduled or forced shut-downs
- component life-extension

Services for Equipment Manufacturers

- Components qualification programs
- Development & type testing, certification (LV,MV, HV, and UHV both AC and DC)
- EMC testing & system qualification
- EX and ATEX certification
- Design & supply of testing laboratories and relevant special equipment
- Certification of quality systems, environmental management systems and safety in workplace systems

Services for Public Administrations

- Energy master plans
  - technical, economical, financial and environmental feasibility studies
  - regulation and tariff scenarios
  - short, medium and long term investment plans
  - renewable energies applications (Hybrid, PV, Wind, biomass)
  - rural distribution
- Environmental plans
- Energy master plans
- Characterisation of air, water and soil quality and electromagnetic fields
- Meteorology relevant to extreme events
- Educational plans and training (ISO 9001 vision 2008)