

TESTS

The **CIT** laboratories are accredited by the Spanish National Accreditation Entity (ENAC) in accordance with standard UNE-EN ISO/IEC 17025.

ENAC accreditations are recognized in more than 50 countries since ENAC is a signatory of the Mutual Recognition Agreements established at an international

level between accreditation organizations all around the world.

ENAC is a member of ILAC (International Laboratory Accreditation Cooperation), which integrates laboratory accreditation bodies around the world.



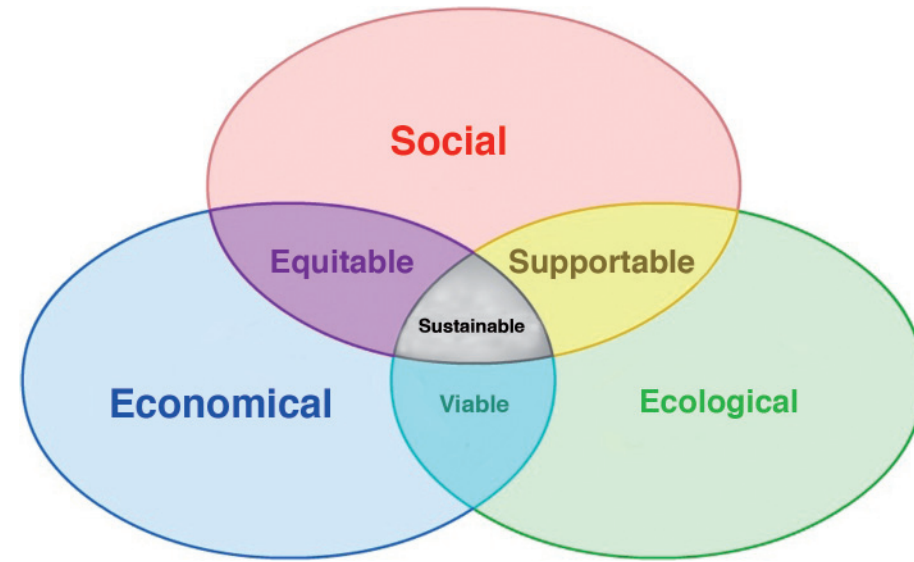
SUSTAINABILITY

Ormazabal has established Sustainability or Sustainable Development, as a strategic objective and is present in all of its activities.

Sustainability is defined as the best compromise between social needs and environmental and economic impact.

We understand that Social Needs come first, while of course taking the environmental and economic aspects into account.

Social aspects are the security of personnel and material goods; and the quality (continuity) of the electrical power supply.



Ormazabal's Research and Technology Center concentrates their efforts in Research and Technological Development as well as Innovation for achieving products and services that are more secure and more reliable, while taking into account the eco design and evolution of the networks and their needs.

We are working in the present to offer the products that will be required in the networks of the future.

The resources used at the Research and Technology Center, Human Resources and Laboratories demonstrates **Ormazabal's** commitment to its customers, which are offered a greater value in the short and long term, focused on sustainable solutions (products and services), adapted to present and future needs.



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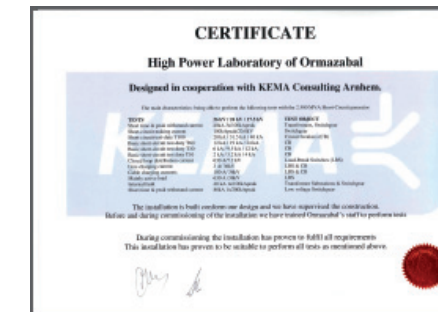


Ormazabal: A life of Innovation

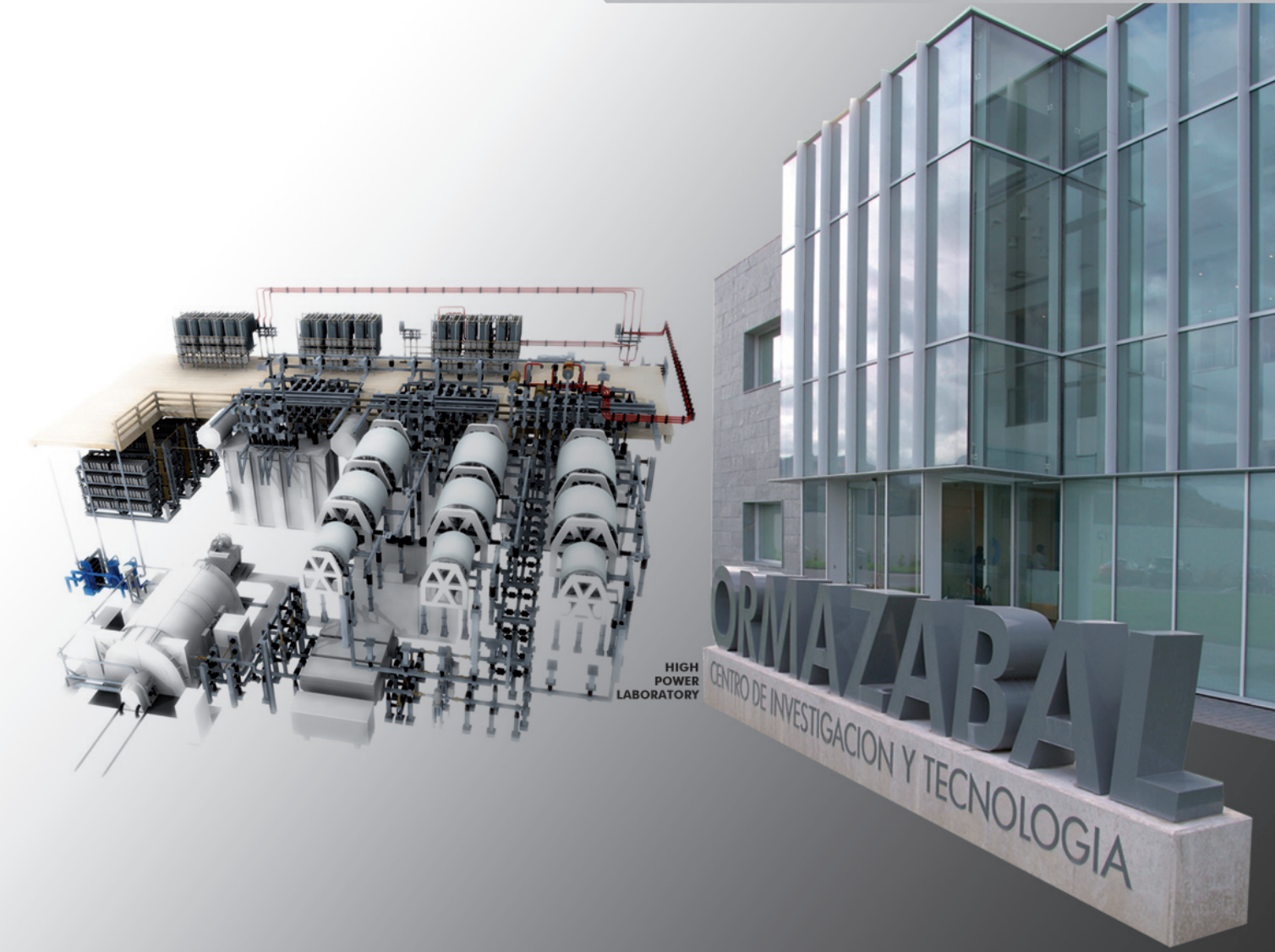
ACCREDITATIONS

The **High Power laboratory, with the collaboration of KEMA**, was certified by this same entity after its commissioning.

Through a collaboration agreement for the mutual assignment of the test installations, the Official Central Electrical technology Laboratory can use the **CIT** installations for performing their own tests.



ILAC: International Laboratory Accreditation Cooperation
ENAC: National Accreditation Entity (SPAIN)



Research and Technology Center (CIT)

CIT: RESEARCH and TECHNOLOGY CENTER

CIT'S MISSION

The mission of the **Research and Technology Center (CIT)** is the identification, acquisition and dissemination within the **Ormazabal Group** of those product technologies or processes, which have been identified as strategic and must be incorporated in the development of new products and processes.

CIT'S VISION

CIT's vision is to become a reference organization at the international level for the application of new technologies in the electric sector; to be achieved through technological leadership within the **Ormazabal Group**.

ORGANIZATION

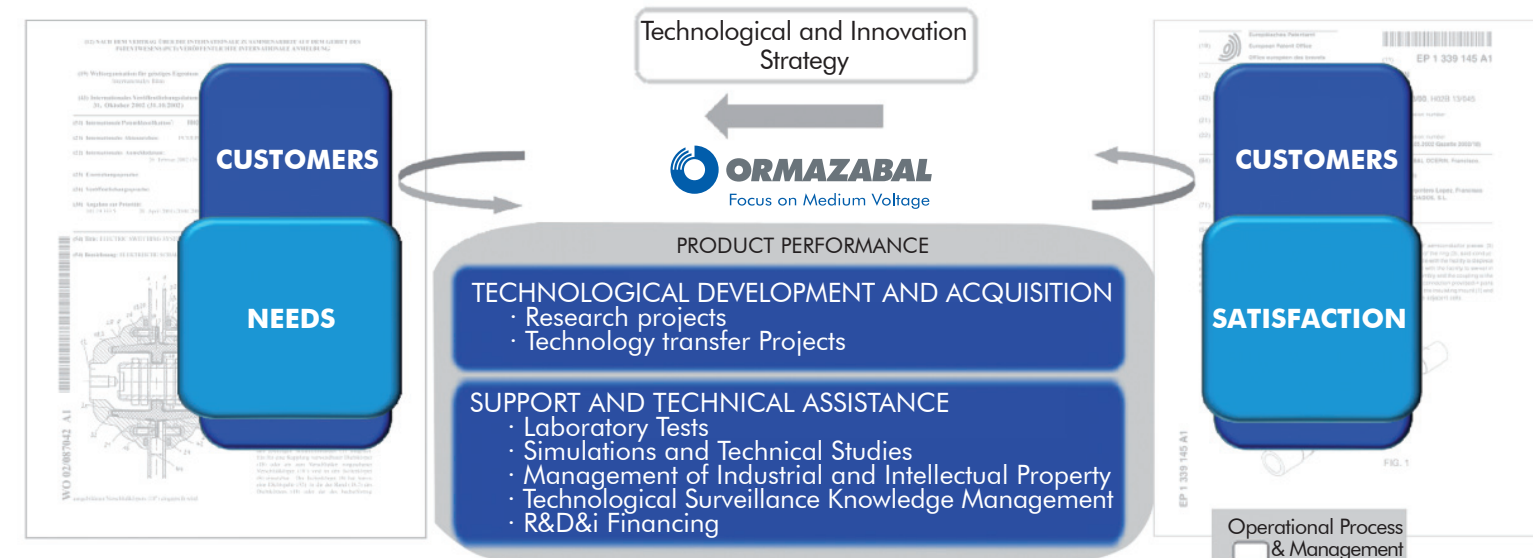
ORGANIZATIONAL STRUCTURE



Surveillance, Research and Technology Transfer: Defines, plans and performs Research projects for the development of new technology, or Technology Transfer projects via collaborations (partners, joint ventures, etc) or our own training for existing technologies.

Consulting and Industrial Property: Management of the organization's intellectual property.
Knowledge Management: Controls document management and the web-based Portal where all the technical information is compiled.
Laboratories: Concentrates all of Ormazabal's testing and experimental research capabilities.

PROCESSES



TECHNOLOGICAL CAPABILITY

From the time **Ormazabal** was founded in 1967, it has been aware of the strategic importance of applied research for its own technological development, and consequently offering quality products and services to clients and reinforcing a worldwide privileged technological position. The Research and Technology Center represents an important leap in the company's evolution; a long desired project whose aim is to be an international technical reference in the field of power distribution networks.

The Research and Technology Center represents an essential element in **Ormazabal's R&D**, with the purpose of capturing and improving existing technologies and researching new ones.

The **CIT** offers its services to the **technological scientific community for research testing, as well as to Ormazabal's own business units and the rest of the electrical sector for developing and certifying products.**

HIGH POWER LABORATORY

In the High Power Laboratory we can experiment and perform development testing of products that are safer for personnel and assets; which contribute to the improvement of quality of supply and sustainable development.

The generation of the required power for testing is produced using a **short-circuit power generator (SCG)** rated at 2500 MVA. The tests can be performed at 50 or 60 Hz.



CAPABILITIES

Laboratory short-circuit Power Tests	2.5 GVA
High Voltage Switches and Circuit breakers	
Short-circuit withstand	40 kA / 3 s
	20 kA / 36 kV
Short-circuit making and breaking tests	31.5 kA / 24 kV
	40 kA / 17.5 kV
Making and breaking of Active Loads	up to 2000 A / 36 kV
Making and breaking of Capacitive Loads	up to 100 A / 36 kV
Internal Arc	40 kA / 1 s
Transformers	
Short-circuit withstand	up to 20 MVA / 36 kV
	up to 25 MVA / 24 kV
Internal Arc	40 kA / 1 s
Low Voltage Switchgear	
Short-circuit withstand	80 kA / 1 s



OTHER LABORATORIES

HIGH VOLTAGE LABORATORY

The following tests can be performed in the High Voltage Laboratory:

- DIELECTRIC TESTS
- PARTIAL DISCHARGE MEASUREMENTS

CHARACTERISTICS

- Lightning impulse testing: up to 300kV
- Power frequency testing: up to 100kV
- Partial discharge measurements: up to 100 kV ≥ 2 pC

TEMPERATURE RISE LABORATORY

- TEMPERATURE-RISE TESTS

CHARACTERISTICS

- Overheating tests: up to 6000 A
- Automatic current regulation
- Temperature Recording Channels: 180

ACCELERATED AGEING TEST

- In this laboratory we are able to perform synthetic tests, applying High Voltage and High Current cycles using independent sources

CHARACTERISTICS

- High Voltage at Power Frequency: Up to 100 kV
- High induced currents: up to 2000 A
- Automated control of cycles

MECHANICAL LABORATORY

CHARACTERISTICS

- Digital Oscilloscopes and Probes
- High Speed Filming: up to 10,000 images/sec
- Salt spray Fog Chamber: 450 l
- Climate Chamber: -40°C to 180°C
- Dew point measuring in SF₆

