Non-reimbursable financing from the European Regional Development Fund for the High Power Laboratory – ICMET Craiova

Since 1st March 2009, Research, Development and Testing National Institute for Electrical Engineering – ICMET Craiova benefits from non-reimbursable financial assistance for implementing the project „High Power Laboratory Modernization for Reaching the Technical and Qualitative Level in Accordance with European Union Requirements".

The funding was granted on the basis of the contract concluded with the National Authority for Scientific Research within the Sectoral Operational Programme "Increase of Economic Competitiveness" - Priority Axis 2, co-financed from the European Regional Development Fund.

- **Information referring to the project:**
  - **Project value: 15,411,565 lei**
  - **The non-reimbursable financial assistance is 12,991,822 lei, from which 9,964,727 lei come from the European Regional Development Fund, and 3,027,095 lei is the national budget contribution.**
  - **Completion term: 36 months**
  - **Deadline for work execution: 1st March 2012**
  - **Thematic area of the project: ENERGY**
  - **Priority axis: Increase of Economic Competitiveness by Research, Development and Innovation**
  - **Intervention field: Investment in the RDI Infrastructure and Development of Administrative Capacity**
  - **Operation: Development of the existent R-D infrastructure and creation of new R-D infrastructures (laboratories, research centers)**
  - **National Programme: Capacities – module I – large investment projects**

- **Additional details can be got from:**
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General objectives of the project:

- strengthening of the research-development capacity
- increase of the possibilities of cooperation between the scientific research institutions and between the scientific research centers and universities within some research projects and excellence centers
- formation of young specialists at the present technical level

Specific objectives of the project:

- assurance of the support for the experimental research necessary to the development and quality certification of electrical equipment;

- development of new circuits and methods for testing the electric apparatus and equipment in accordance with the requirements of international standards (IEC and IEEE - ANSI) ;

- reaching of the technical and qualitative level so as it could offer testing services for certifying the electrical equipment quality, corresponding to the competitive level specific to a free market;
- increase of the educational act efficiency in technical universities, by providing the possibilities of performing practical activities for year projects/diploma projects, getting the master degree and participating in training courses etc,. in a laboratory which fulfills the technical and quality requirements at international level;
- creation of technical conditions and increase of the efficiency of the specialists from Romania in approaching some researches within the European programmes and within the participation in the works of the Technical Committee of the world organization of short circuit testing laboratories - STL (Short Circuit Testing Liaison), with a view to accrediting the High Power Laboratory, from the status of participant member to the status of full member.

Project relevance against the objectives of the priority axis II and intervention field:

- Development of the material base and research infrastructure for the purpose of cooperation between ICMET and the electrical equipment manufacturers for developing new products
- Development of the research in a partnership between ICMET Craiova, universities and industrial units, with a view to getting applicable results.
- SMEs access to using the research infrastructure for their own RDI activity.

Project relevance against what the operation to which it addresses proposes itself:

- Modernization of the existent laboratories
- Development of new accredited testing and calibration laboratories
- Formation of excellence centers composed of the institute laboratories and laboratories from other institutes and universities

Project relevance for the relevant scientific/technologic field or economic sector at both national and international level:

- Simulation of some on-site conditions specific to different equipment in laboratory and monitoring of their behavior with a view to assess the capability of fulfilling the functions imposed in the project.
- Execution of research-development tests for verifying the constructive solutions and finalizing the prototypes
- Experimental verification of some calculation method with a view to developing a calculation algorithm for designing new switchgear
- Certification of high voltage electric equipment from the regulated field with a view to its commercialization
- Certification of medium voltage and high voltage equipment in the non-regulated field, by performing type tests in accordance with the requirements of the international, regional and national standards, as a final stage of the research development programmes for developing new products.

Necessity of achieving the project for reaching the objectives:

The High Power Laboratory from Craiova, with the dimensions of an electrical power plant with a short-circuit power of 7500 MVA, is an infrastructure in the field of experimental research and tests for certifying the quality of electric equipment.

The Laboratory is unique in Romania and Balkan area, and the parameters able to be got in direct diagram are comparable with those achieved by KEMA – The Netherlands and CESI Italy laboratories.

The achievement of this project is necessary for raising the technical and qualitative level of some parts of the installation (switchgear and controlgear, measuring systems) to the performance level of the existent power supplies.

The buildings and related indoor ($\approx$ 9000 m^2), outdoor ($\approx$ 9000 m^2) spaces corresponding to the testing equipment and diagrams, also the auxiliary services for the clients (preparation halls for assemblage, transportation of the equipment from the preparation halls to the test cells and back, mounting conditions and environment) should be in accordance with the profile standards.

The value added scientifically by achieving the project will be reflected in the services offered for execution of operational research by performing tests in accordance with the requirements of the product standards, complying with the allowed tolerances and supplying the information to the customers, by high accuracy measurements, using measuring systems and transducers with traceability to the reference standards of the BIPM member states.

The researches focused by modernizing the High Power Laboratory, including also the related stands, are:

- research on the thermal and dynamic stability of circuit breakers, disconnectors and switch disconnectors, measuring current and voltage transformers, distribution cubicles etc.
- research regarding the resistance of the ceramic , glass, composite etc. insulators against the action of electric arc.
- research on the behavior of the protection equipment for the personnel from the distribution substations against the action of electric arc
- research on the surge arresters behavior to shortcircuit currents
- research on the behavior of low, medium and high voltage, line elements inclusively, against the long term withstand currents
- research on the resistance of power transformers against sudden shortcircuit, calibration of high current measuring systems and devices