1. Project name: System for bushing monitoring with a view to preventing ecological disasters caused by high power transformer damaging - MONBUSHING

Stage I: Studies on the development of the theoretical support necessary to the monitoring methods of the bushings which fit out the power transformers.

For achieving this stage the following activities have been performed:

Activity I.1: Comparative study on the methods for on-line monitoring of the bushings which fit out the power transformers

Activity I.2: Study for developing some concepts, theories, solutions for determining the quantities which characterize the bushings

Activity I.3: Study on the development of some methods for acquiring, processing and measuring the quantities which characterize the bushings (capacitive current, reference voltage) with a view to determining the phase difference between the two quantities

Activity I.4: Study on the drawing up of some mathematic solutions and software simulation for the calculation of dielectric losses, capacitive current and capacities (quantities characterizing the bushings)

The following have participated in carrying out the activities of this stage:

ICMET Craiova, P1, Project leader.

-has coordinated the activities, establishing for each partner the tasks assigned according to the schedule for project achievement

-has drawn up the activity report, taking into account the activity reports of the partners involved in this stage

-has worked out: internal endorsement report, payment request, general estimate after calculation, general sheet of the planned and actual costs, account sheet, estimate after calculation, summary of the wage expenses, summary of the material expense and inventor yitems, summary of the endowment expenses.

-has drawn up (within the activities A1, A2, A3, A4) studies on the constructive solutions, importance and role of on-line monitoring, synthetic analysis of the monitoring methods used by recognized companies, studies on the solutions for determining the quantities which characterize the bushings.

Technical University – Cluj Napoca has drawn up a study on the industry applications monitoring using virtual instrumentation. Within this study, it has developed chapters, such as:

- Virtual instrumentation impact;
- Monitoring system structure;
- Measuring systems-DAQ;
- Use of LabVIEW software in the data analysis and processing system

University POLYTECHNICA – Bucharest has drawn up a study on the systems for the analysis of distorting regime and software instrumentation, with general considerations on the virtual instrumentation.

University of Craiova has drawn up a study on the use of digital apparatus for monitoring and protecting the primary equipment, developing the following sub-chapters:

- Structure of a configurable digital equipment;
- Software methods for processing the acquired signals;
- Calculations of effective values and phase difference of analog quantities, by using:

a) Method of mean value;
b) Method A4 modified;
c) Method of direct effective value;
d) Fourier method.

SC IPA SA Bucharest and SC VIG IMPEX SRL Craiova have participated in carrying out the Study on the elaboration of some mathematical solutions and software simulation for calculating the dielectric losses, capacitive current and capacities (quantities which characterize the bushings).