



LETTER OF INTENT

1. BACKGROUND:

1.1. Short presentation of INMA

The National Institute of Research-Development for Machines and Installations designed to Agriculture and Food Industry-INMA, from Bucharest/Romania (www.inma.ro) has an experience of about 80 years and it is the unique Romanian institute in the field. The main activities performed within the institute are *research-development* and *scientific services*.

The research-development activities comprise in elaboration of diagnoses, prognoses and strategies in the domain of technologies and technical equipment designed to agriculture and food industry, research and development of the processes, technologies and technical equipment for agriculture and food industry, performing of experimental models and prototypes, testing in laboratory and operating conditions of the machines and installations designed for agriculture and food industry in compliance with the UE procedures, norms and directives, standardization in the domain of technical equipment and activities of professional training, specialization and staff certification in the domain of mechanization technologies.

The scientific services comprise in testing of technical equipment, certifying the product conformity, performing technical inspections for tractors, lorries, trailers and cars, technological transfer and innovative business through the accredited incubator INMA-ITA.

The main Research Directions are:

- Fundamental research of interaction phenomena of biological, soil and technological factors on the technical equipment in the processes of mechanization and automation of works in agriculture;
- Scientific substantiation of the processes in agriculture, food industry and creating of new innovative technologies, instruments and technical equipment designed to soil works, establishing, maintaining and harvesting agricultural crops, horticultural cultures, as well as, agricultural and livestock and agro-forestry works; in compliance with environment preserving and fighting against draught phenomena and desertification;
- Renewable power sources: biomass, bio-fuels, biogas (from animal dejections and vegetal wastes), technologies and technical equipment for their use in conditions of efficiency, life, health and environment protection;
- Rural development and raising of life quality by technological transfer and demonstrations of the research results performed by the Institute;
- Strengthening the research basis (human resources, logistics, research equipment) and performing some partnerships for connecting to ERA, including the integration within the technological platforms at the European level;
- Substantiating and achieving new mechanizing and automating technologies designed to agricultural and food industry processes, such as: conditioning, processing, stocking and storing primary agricultural products, non-agricultural products and aquaculture in conditions of efficiency, security and safety.

1.2. INMA achievements

INMA has experience in production and processing technologies of agricultural and forestry solid biomass (drying, grinding, sorting) in order to obtain woodchips, pellets and agro-pellets. We have conducted a lot of experiments concerning the biomass combustion process in function of the

type of fuel used (woodchips, pellets, agro-pellets, briquettes, miscanthus grinding, wood branches etc).

1.3. INMA infrastructure

In terms of recognition of technical and scientific capabilities by accreditation, the research infrastructure of INMA consists in research, testing and experimenting laboratories, accredited in accordance with the rules and directives of EU, which verifies the technical and scientific competence of certain ideas, solutions, equipment and new products having a state-of-the art technical endowment and high qualified personnel.

The institute has a Testing Department for Tractors and Technical machinery for agriculture and food industry which has in subordinate 2 equipped laboratories performing similar to EU laboratories level, accredited in accordance with standard SR EN ISO / CEI 17025: 2005:

- DI - Testing Department for Tractors and Technical Equipments for Agriculture and Food Industry.

2. DIRECTION AND OBJECTIVES OF RESEARCH:

We intend to submit a project proposal focused on using biomass in a CHP system designed at residential scale.

The project proposal aims to use biomass as a source of heat, for cogeneration in conditions of maximum efficiency. Therefore, the project will develop a universal biomass heating system that will be used to obtain thermal and electrical energy. Universality will be given by the sources of biomass used: sustainable feedstock (including mixtures) with high ash content such as agricultural and forest residues, upgraded solid or liquid bioenergy carriers with higher energy density and industrial by-products. The CHP system will be designed to achieve a power up to 250 kW.

We are open to any collaboration in order to develop our research regarding to the biomass combustion and CHP generation.

3. COLLABORATION PROPOSAL:

Programme: Horizon 2020

Pillar no. 3: Societal Challenges

Objective no. 10. Secure, clean and efficient energy

Call: **COMPETITIVE LOW-CARBON ENERGY**

Topic: ICE-2-2014: Developing the next generation technologies of renewable electricity and heating/cooling

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