

### a) Ambito scientifico/tecnologico

Environment, sustainability, energy, bio-economy, green economy, circular economy, biowaste valorization

### b) Elenco di possibili stakeholders

Public authorities and companies.

### c) Elenco competenze e strumentazione

R&D and services about governance, risk and compliance (GRC), Life Cycle Assessment (LCA), environmental footprint (product and organization), sustainability assessment, certified environmental management systems (EMS).

Thermo Catalytic Reforming (TCR) technology developed by Fraunhofer UMSICHT. Pilot plant for wastewater filtration. Tester for pollutant adsorption. LCA dedicated software and databases.

### d) Highlight

Since 2002 the EMRG has realized more than 30 projects out of which some were financed by Private Companies. Examples are the certification schemes to Airport Management Companies (ISO14001 at Palermo Airport and Airport Carbon Accreditation at the Bologna Airport, briefly described below.



#### Palermo Airport:

- implementation of an Environmental Management System according to the ISO 14001:2004/2015 Standard;
- maintenance of the system after obtaining the certification;
- energy certification of the office building.



#### Bologna Airport:

- Analysis of the processes related to facilities and equipment that are potential sources of GHG;
- calculation of emissions according to specific emission factors, according to the GHG Protocol and of ISO 14064 standards;
- assistance during third-party verification;
- training of airport personnel.



In the last year, most of the activity of the EMRG has been dedicated to the realization of a research center in collaboration with the Fraunhofer Institute UMSICHT, Sulzbach-Rosenberg Branch. The Center, named Fraunhofer Innovation Platform on Waste

Valorization and Future Energy Supply at the University of Bologna (FIP-WE@UNIBO). The formal Framework Agreement for FIP-WE@UNIBO is in the final phase of negotiation, but much of the equipment is already installed and activities have been started on Advanced Carbons development, Pyrolysis applications for biomass, plastics and composite materials, and Power-to-Gas. The FIP-WE@UNIBO is hosted in the Centro di Ricerche Ambiente, Energia e Mare in Marina di Ravenna.

**e) Responsabile scientifico ed eventuale sito web**

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