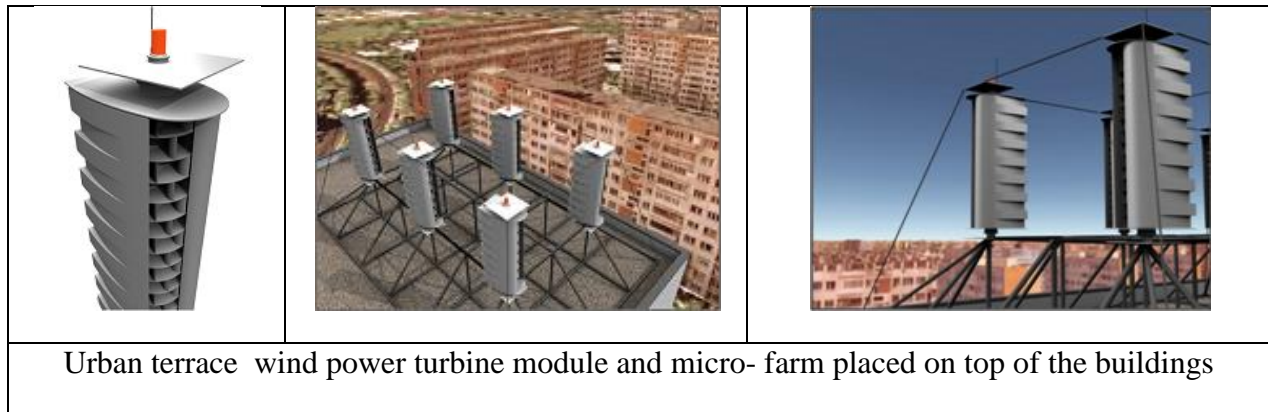


**ROMANIA – BULGARIA CALL FOR PROPOSALS FOR JOINT  
R&D PROJECT WITHIN EUROSTAR PROGRAMME  
SECOND DEADLINE FOR SUBMISSION – 4<sup>TH</sup> APRIL 2013**

**PROJECT IDEA: URBAN TERRACE WIND TURBINE**

The new urban wind turbines have no exterior rotating parts and have a modular structure made of removable components. The components of a module have sizes and weight that can be easily handled by 2 people. They can be manually lifted on the terrace of an existing building by 2 people. Installing these turbines on existing buildings is performed on the spatial light structures which don't affect the cover of the building. On the support structure of the wind turbines, panels may be mounted to collect solar energy.

Urban terrace wind-turbines (UTWT) are installed on the buildings' terrace or buildings' roof.



The UTWT can be manufactured in a large range of power and dimensions and they have a shape that can be adapted to existing urban architecture. The UTWT have tower-shaped and enclosed in a self-orienting carcass that facilitates collection, concentration and redirection of air currents.

Turbines can be grouped in micro-farms with a rigid position by ballasting and use of cables to connect towers together and link the entire structure to a lightweight stiff base.

The UTWT are installed by the simple placement and ballasting on the terrace of the block without affecting the protection layers of the building.

The rotation housing (stator) of urban terrace wind turbines focuses and directs the air currents only on the active part of the rotor.

The research methodology is based on achievement in steps of investigation in order to find effective technically and economically solutions for converting wind energy from urban areas into electricity.

Step 1- analysis of existing UTWT.

Step 2 – Conceive new UTWT.

Step 3 – Design the UTWT model.

Step 4 – Manufacture UTWT model.

Step 5 – Testing UTWT.

Step 6 – Analyses of the results and proposals for production of the new UTWT.

The SME coordinating company for this project is:

**SIGMA STAR SERVICE L.T.D** is a small research and micro-production firm that has operated in Romania since 1991. The company has expertise in a wide range of industrial sectors: green energy, environmental protection, civil and industrial construction, control of shocks, vibrations and seismic movement, and agricultural equipment.

**SIGMA-SS** owns a large number of patents that underpin development of new products and technologies in the areas afore mentioned. These innovations are at various stages of implementation depending on company's clients requests.

The main research results and products of the company include:

- a new modular wind turbines of urban, on-shore and off-shore, low cost and highly efficient
- a novel wind and tidal waves turbine generator for small and large amplitude waves
- collection and storage of solar energy in multi-temperature steps tanks
- mechanical devices for reduction and control of shocks, vibrations and seismic movements affecting buildings, equipment and pipe networks
- new solutions to increase the efficiency of thermal power plants (classic & nuclear) that use the Rankine – Hirn cycle with the benefit of recovering thermal energy from warm cooling water

We are searching for partners for this project proposal in the following fields: research and component production of urban wind turbines.

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