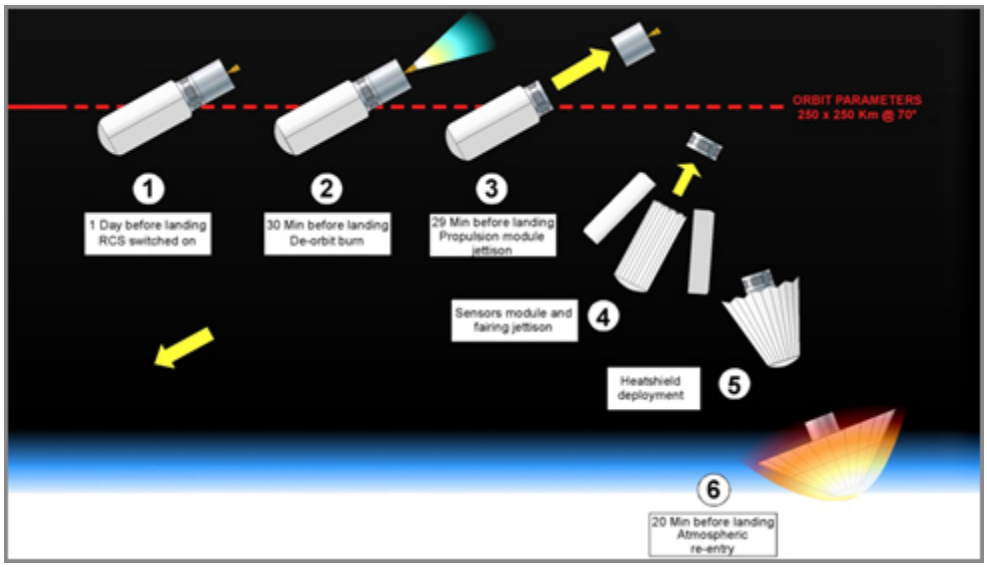

The program **IRENE (Italian Re-Entry Nacelle)** is a reusable, low cost and develop in a short time to perform various types of missions. The intention behind the project is to test the feasibility and implement a re-entry system of small size and limited mass based on the latest aerospace technologies.

The main features of the capsule will be:

1 - **Re-usability of the system**. The module will return to the atmosphere that can be reused for a subsequent mission, after an appropriate replacement parts or inflatable umbrella like and / or refurbishment of damaged during re-entry and impact. Note that the cost of the system comes into play when consideration of the applicants might be comparable to non-applicants in the face of a scenario using multiple missions.

2 - The ability to **return small weight/volume payloads** to earth.

3 - Construction of **thermal protection** umbrella-like.

4 - **Composite structures**. Using innovative materials as carriers of the vehicle in such applications.

The preliminary study aims to outline the **feasibility** of the entire project and to obtain as a product **demonstrator** engineering, especially the part related to the thermal protection system. The demonstrator developed will

carry out a full re-entry test in the wind tunnel Hypersonic Plasma Scirocco at the Italian Centre for Aerospace Research (CIRA), designed to validate the theoretical results on the field from the study.

IRENE could be used in Earth-Observation missions, or missions to test limited in time.