

# Gridded Ion Engine Standardised Electric Propulsion Platforms

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**Abstract:** Within the frame of the H2020 Research program - H2020 - COMPET – 2016 COMPET-3-2016-a SRC - In-Space Electrical Propulsion and Station Keeping, Incremental Line - Gridded Ion Engines of the European Union, a Research and Innovation contract No 730002 has been awarded to consortium led by Airbus Safran Launchers, and consisting of QinetiQ Ltd., Airbus DS, CRISA, OHB, AST Advanced Space Technologies, Mars Space and University of Southampton.

The consortium will develop, build and test to TRL5 the first European Plug and Play Gridded Ion Engine Standardised Electric Propulsion Platform (GIESEPP) to operate Airbus Safran Launchers and QinetiQ Space ion engines. These are the only European ion engines that are space-proven, and the consortium's intention will be to improve European competitiveness and to maintain and secure the European non-dependence in this field. The project will design and develop a standardised electric propulsion platform for 200-700W and 5kW applications, which has the capability to run either Airbus Safran Launchers or QinetiQ thrusters. In addition, the 5kW electric propulsion system will be designed to allow clustering for 20kW electric propulsion systems for space transportation, exploration and interplanetary missions and commercial telecom. In order to cope with challenging mission scenarios, Dual Mode functionality (High Thrust / Lower Specific Impuls and Lower Thrust / High specific Impuls) of the thrusters will be realised. This ensures that the beneficial high Isp characteristics of Gridded Ion Engines are maintained, whilst also offering a competitive higher thrust mode. The GIESEPP systems will not be limited to xenon as an operating medium; assessments will be performed to ensure functionality with alternative propellants. The approach to system standardisation and the resulting solutions will provide highly cost competitive and innovative EPS for current and future satellite markets, whilst meeting the cost efficiency requirements. The GIESEPP systems will not be limited to xenon as an operating medium; assessments will be performed to ensure functionality with alternative propellants. The project will give the roadmap to higher TRL by 2023-2024, providing a cost competitive electric propulsion system that will meet the highest standards for an industrialised, rapid production process. The anticipated business case is targeted for long term exploitation up to 2030 strengthening Europe's technological and economical competitiveness in a very fast changing market environment.

The paper will provide an overview of the activity and explain the technical and commercial approach to achieve the targets of the project. Audience and reader will be informed on status of the project and technical and commercial achieved results.