IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Launch Services, Missions, Operations, and Facilities (2)

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ENGINEERING CAPABILITY WITH ENVIRONMENTAL CONSCIOUS

Abstract

Skyrora is a UK launch vehicle provider aiming to support the government plans for space sector growth through the development of an orbital vehicle and carefully selected supply chain innovations that we believe will reinforce the industry for years to come. Skyrora is headquartered in central Edinburgh, opposite the historic Edinburgh castle. We have a diverse team of 130 individuals spread across various production facilities in the UK and Europe. Skyrora's strategy is to take an incremental 'step-by-step' approach to allow for critical testing and de-risking. We utilise proven technology in combination with advanced additive manufacturing methods. We take significant inspiration from previous UK space heritage, sharing the same propellant combination as Black Arrow and utilising learnings from Skylark for our suborbital test programme. Skyrora is moving quickly to create innovative, long-term solutions for future growth. As part of the de-risking approach, Skyrora has developed four suborbital rockets in order to perform real-time testing of the avionics, ground control systems, payload deployment and recovery systems of the vehicles in parallel with the development of our orbital rocket. Our orbital vehicle, Skyrora XL consists of 3 stages with a re-ignitable maneuverable third stage allowing for the specific placement of satellites in orbit. Skyrora XL can carry 315kg of weight up to 500km high. Skyrora are in the midst of developing a suite of innovative technologies all with environmental priority. Skyrora's Ecosene is an RP-1 rocket fuel equivalent that produces 45 percent less greenhouse gas than traditional Kerosene. The fuel is derived from unrecyclable plastic waste that would otherwise end up in landfill, and a Scotland-based Ecosene plant would have the potential to bring 254 tonnes of plastic waste back into circulation each year. Skyrora also use 3D printers to manufacture various rocketry components. 3D printing is viewed as a key sustainable methodology of production due to its ability to facilitate more efficient designs and thus generate less waste. The third stage of the Skyrora XL vehicle (or the Space Tug), will offer an abundance of environmental benefits, such as the removal of space debris and defunct satellites, as well as repositioning of satellites in orbit. In terms of launch, Skyrora's launch infrastructure is substantially containerised and portable with a mobile suborbital launch pad. While our orbital launch pad will require a certain level of permanent concrete structure; the ground footprint and ecological impact of our launch site is minimised by design.