



FREQUENTLY ASKED QUESTIONS

June 2021



	QUESTIONS	SPACEPORT ANSWERS
THE PROJECT	What is the Spaceport project?	Spaceport Cornwall is a project between Cornwall Council, The Local Enterprise Partnership, Goonhilly Earth Station Ltd and Virgin Orbit, to provide horizontal satellite launch from Cornwall Airport Newquay from 2022. The development will stimulate the demand for a high-tech space cluster in the South-West in order to create high paid jobs in Cornwall in a globally growing sector.
	Who is paying for it?	Funding is provided Cornwall Council, CIOs LEP, the UK Space Agency, BEIS and the European Regional Development Fund (ERDF).
	What does it involve?	The spaceport site provides the required infrastructure for partners to safely and efficiently prepare their hardware for launch. The site will be home to laboratory space, cleanrooms, testing facilities and outreach events. The path to becoming a fully operational spaceport involves constructing the spaceport site, developing procedures, securing an airspace reservation, spaceport licensing, training, logistics, security, and safety analysis just to name a few key points.
	What's the timeline?	Construction of the spaceport site will be undertaken between June and December 2021. The spaceport licence application will be submitted in August 2021, with the UK pathfinder launch taking place in the first half of 2022.
LAUNCH MARKET	What's the market demand for commercial satellite launch in the UK?	The UK builds a large proportion of the world's small satellites yet has no launch capability. It is estimated that over 13,000 satellites are required to be launched by 2030. Compared to the 3,300 currently active satellites, this represents a massive growth in the demand for affordable access to space.
	Why do we need a UK spaceport if the launch provider is US based?	Different satellite customers need different launch trajectories for their payloads. Virgin Orbit is building up a network of spaceports around the globe that can access all the trajectories at very short notice, making their solution flexible and responsive. Newquay is ideally placed to service northerly and southerly polar orbits via launch in the North Atlantic. A national spaceport is also beneficial for the UK supply chain and payload customers who currently have to go overseas to access launch.

VIRGIN ORBIT	What does horizontal launch mean?	Horizontal launch involves using a ‘carrier aircraft’ that takes off and lands like a normal aircraft, and a rocket attached underneath that will be deployed from a high altitude. Virgin Orbit’s system involves a modified Boeing 747 as the carrier aircraft, deploying the rocket when safely established within the launch range.
	Will rockets launch directly from Cornwall?	There are no plans to launch rockets near the land. Our geographical advantage is that we are located on a peninsular in the Atlantic Ocean, providing easy access to uncongested marine areas and airspace for launch. Virgin Orbit’s rocket will be deployed at 35,000 feet above the ocean at a safe location close to the United Kingdom, in coordination with Air Traffic Control.
	Is the system reusable?	A significant benefit of the horizontal launch system is that the carrier aircraft is completely re-usable. In the early stages of the launch programme the expended rocket first stage will fall into the ocean, with no expected pollution impact, while the second stage will burn up in the atmosphere upon re-entry.
	What is “Cosmic Girl”?	Cosmic Girl is the name of the modified Boeing 747-400 that will carry the LauncherOne rocket on its left wing. The aircraft is an ex Virgin Atlantic passenger airliner, manufactured in 2001 and retired from fleet in 2015. Cosmic Girl has retained its civilian airliner name, named after a pop song in a tradition going back to Virgin’s roots as a record label.
	What is “LauncherOne”?	It is Virgin Orbit’s purpose-built rocket. It is a two-stage liquid-fuelled rocket that can deliver a payload of 300 to 500 kg to Low Earth Orbit at a competitive price.
	Hasn’t horizontal launch been done before?	It has. Orbital Sciences (now Northrup Grumman) have successfully developed and operated the Pegasus launch vehicle, deployed from a Lockheed Martin L1011 Tristar. The system has seen 39 successful missions, while at US\$40 million per launch it has been largely uncompetitive. The most recent Pegasus launch was in October 2019. By comparison, Virgin Orbit’s proprietary liquid-fuelled rocket can provide improvements on cost and on functionality.
	Will there be frequent launches from Cornwall?	The project will be low frequency but with high quality and high value launches. The business case estimates a maximum of 8 launches a year by Virgin Orbit, however if demand exceeds expectations, there will be an environmental cap of 12 launches per year, at which point the project will come back to Cabinet with a revised environmental plan of how to mitigate the carbon impact.

	Is Virgin Orbit's launch system proven and operational?	Virgin Orbit have completed their test programme in the USA in California and have had a successful launch in January 2021 comprising 10 NASA CubeSats precisely deployed into their orbital slots. They are now fully operational with a busy schedule of future launches planned, including one from Cornwall in the first half of 2022.
	Are Virgin Orbit committing any investment into the project?	Virgin Orbit have committed £1 million to delivering a UK spaceport, and have committed a further £1.5 million to deploy the launch system to UK. In addition, Virgin Orbit has spent \$1 billion on the launch system technology programme in the US, which is needed to facilitate launch from Cornwall.
OPERATORS	Do you have any other operators, or only Virgin Orbit?	Whilst our primary launch partner is Virgin Orbit, we are working with other partners to ensure we are creating the right infrastructure to attract high-value space companies to Spaceport Cornwall. Our recent MoU with Sierra Space demonstrates this commitment to being a multi-user spaceport, to support many sustainable space activities and to grow our capabilities.
AIRPORT INFRASTRUCTURE	Is a runway extension required?	No runway extension is required to operate Virgin Orbit's launch system. At 2,744 metres long, Cornwall Airport Newquay's runway 12/30 at is a fantastic asset for the development of a Cornish spaceport.
	Is a new hangar or airport terminal being built?	Spaceport Cornwall is developing a Satellite Integration Building, Launch Operations Centre and Mission Operations Facility to support horizontal launch. These will be located in Spaceport Development Zone 1, on the south side of the runway by Echo Apron. The facilities will enable Assembly, Integration & Test (AIT) of the satellites, integration of the launcher stages and mission control. Additional development involves equipment storage, hazardous material storage, security facilities and equipment staging areas.
	Will adding additional operators to Spaceport Cornwall require additional infrastructure on site and therefore further funding?	Spaceport Cornwall is a multi-user spaceport and infrastructure on site will be shared by operators at different times for their launch campaigns. Launch frequency in the first few years is low and attracting additional operators will bring in extra revenues for the use of facilities. Once facilities are close to capacity future facility expansion will be paid for using launch fee revenues.
	Will creating a spaceport have a negative impact on Cornwall Airport Newquay with further passenger delays?	Spaceport operations will be fully integrated with passenger services, airport activities and air traffic, and any incompatibilities will be timed to minimise the effect to other aerodrome operators. In any case, launch frequencies will be relatively low.

	Are any exotic fuels being used?	No exotic fuel is required for Virgin Orbit’s launch system. The B747 “Cosmic Girl” uses standard Jet A1 (kerosene), and “LauncherOne” the rocket uses rocket propellant RP1 (a high-grade Kerosene) and liquid oxygen.
LOCAL BENEFITS	How will the project benefit Cornwall?	The project will create 150 direct jobs by 2025, of which over half are expected to be filled by local residents. This will add £200m Gross Value Added (GVA) to the economy and will act as a catalyst for wider growth in associated sectors which use space derived data and applications. As a truly ground-breaking initiative Spaceport has the potential to inspire a whole generation. An additional 240 jobs will be created in the supply chain and ancillary activities. Spaceport Cornwall is stimulating the space cluster in Cornwall, which has grown 164% since 2010, and wider industry by raising Cornwall’s profile on a global stage.
	If the launch aircraft is being flown in, where do all the extra jobs come from?	Initially the number of direct jobs will be the project team and UK manufacturers of ground support equipment. However as the Spaceport develops and more aircraft are based at the Spaceport, the number of direct and indirect jobs will increase significantly with Spaceport operations staff, employees for the operators, suppliers and support industries that will build up in a technology cluster around Cornwall Airport Newquay. As a comparison, Goonhilly Earth Station employs 100 new FTE’s and average salaries in the sector are approximately £40,000, well above the Cornish average wage. Spaceport Cornwall will accelerate this growth.
	How will spaceport create good jobs for Cornwall residents, won’t the expertise be brought in to run the project?	Cornwall already has local expertise with over 50 companies already contributing to the Cornwall Space Sector (see map below), and new courses being developed by Cornish Further Education Colleges and Universities mean more local residents will have the skills required. Employees of the support services and suppliers to the technology companies will also benefit from increased demand.
ENVIRONMENT	How does the project consider the Climate Change Emergency?	Spaceport is the first Cornwall Council project to undertake an independent carbon emissions report. We have used industry recognised fuel data, independent world-renowned climate change academics, and asked them to add generous multipliers to build in contingency for any uncertainties. Through the spaceport licensing process, full Assessment of Environmental Effects (AEE) will be collated to fully understand and best mitigate significant environmental impacts. A Sustainability Plan (including an offsetting plan) and regular reporting will be publicised to ensure we are meeting our sustainability targets.

	Why do we need more satellites and how can we justify adding to the carbon footprint of the airport?	An independent study by the University of Exeter estimates that Spaceport activities will account for a maximum 0.1% increase in annual carbon emissions from Cornwall. Impacts will be mitigated above and beyond aiming to make the project carbon neutral. Satellites are critical for keeping us connected, monitoring climate change and advising environment policy makers. Newer and more capable satellites are required as technology advances and are able to provide higher quality imagery and data at an increased rate.
	Will space launches be very noisy and disturb local residents?	The launches at Cornwall Airport Newquay will involve a modern 747-400 aircraft taking off and landing in the same manner as any other aircraft movement that local residents are used to. The rocket will be fired many miles offshore and will not be heard from the sea below, let alone from Cornwall.
HUMAN SPACE FLIGHT	Will tourists be travelling into space from Cornwall?	There are currently no plans for humans to launch from Cornwall. Any proposals of this nature would require their own business plan and the proposal would have to be taken through a full Cornwall Council approval process.
	Will Spaceport Cornwall support point-to-point human spaceflight?	There are currently no plans for Point-to-Point human spaceflight from Cornwall; at present there is no operator that offers this service, and additionally, the United Kingdom's space regulations framework does not currently support it.
FUNDING	If VO want to deliver the launches, then shouldn't they be paying to build the Spaceport?	Cornwall Council are investing in a Cornwall owned Spaceport that can host multiple operators, in the same way the airport hosts multiple airlines, operators and supports flying training. Virgin Orbit will be our primary and principle operator, but after the initial setup phase they will pay launch fees, storage charges and fuel uplift like any other operator.
	Will Cornwall Council be directly investing in Virgin Orbit?	No. Council funding will be an investment in necessary airport infrastructure that can be used for other activities, for instance taxiway widening, apron repairs and runway turn pads. Even the UK Space Agency money going to Virgin Orbit as part of the government grant funding agreement is going straight back out to UK industry in the development and manufacture of Transportable Ground Operations System (TGOS) equipment, which will be based in Cornwall.
MILITARY	Will the Military be launching from Cornwall?	The MoD is a partner of Virgin Orbit as part of the ARTEMIS programme which will offer responsive satellite launch for military communication satellites. Currently there is no official arrangement with MoD to use Cornwall to launch, however this would be a significant opportunity to secure a UK payload customer.

	Are the RAF interested in Spaceport Cornwall?	The unique position of having an RAF base, commercial passenger airport and licenced Spaceport in one location in Cornwall should not be underestimated. RAF St Mawgan is exploring options to expand its capability and be part of the MoD's Space activities, and as such are fully supportive of Spaceport Cornwall. This would have significant additional benefits for the local Cornish economy.
BUSINESS PLAN	Is there a Business Plan for Spaceport Cornwall?	There is a fully detailed Business Plan for Spaceport Cornwall which identifies the market opportunity, Return on Investment, and full Green Book Appraisal signed off by HM Treasury. You can download a copy of the Cabinet papers here or use this link: https://tinyurl.com/y6kalua4
OUTREACH	What are you doing to help inspire the next generation?	In the last year we have engaged with over 10,000 students. We are running quarterly 'Inspiration Space' broadcasts with up to 40 local primary schools per time. On the back of these broadcasts we have developed a space activity booklet, that links in directly with the primary curriculum and the worksheets can be downloaded from our website for free: https://spaceportcornwall.com/spaceport-educational-resources.html . We have an ambition to help increase the number of students studying STEAM (Science, Technology, Engineering, Arts and Mathematics) in the county. We have also carried out many three-day Virtual Work Experience placements for over 50 students.
	How will you address the skills gap?	We are working with the colleges and universities to help ensure that there are courses being developed that can be studied locally and can lead to future careers within the sector and have recently started working with the University of Exeter to set some of their Masters students relevant projects.
	Where can I find more information to help inspire my children?	We are developing this all of the time, but the two best places to look at present are our website: https://spaceportcornwall.com/spaceport-educational-resources.html and YouTube channel: https://www.youtube.com/user/aerohubnqv Following us on social media will ensure that you can keep up to date with all of the recent educational developments: Twitter: Profile Twitter LinkedIn: Spaceport Cornwall: Overview LinkedIn Facebook: Spaceport Cornwall Facebook