

Spaceflight Programme

Commercial range control services: Call for grant proposals

Announcement of Opportunity

HM Government is enabling access to space from the UK. We are inviting applications for public grant funding from enterprises interested in developing the commercial range control services needed to enable safe UK spaceflight from the early 2020s.

Strategic Context

1. The Government's ambition is to grow the UK's share of the global market to 10% by 2030. To achieve this ambition, industry will need to quickly seize the most significant growth opportunities in current and emerging markets.
2. Our National Space Policy of 2015 has set a clear aspiration to enable access to space from the UK: *"Government will enable access to new space markets where they offer significant advantages to UK space businesses"*. The UK space industry identified access to space as one of four priority areas for effort in the 2018 'Prosperity from Space' strategy.
3. We have already set out our ambition to enable commercial spaceflight from UK spaceports, and companies are innovating to create the vehicles necessary to place satellites in key orbits and provide reliable, low cost launch services. Independent research suggests that achieving launch in the early 2020s is necessary to capture the growth potential offered by these emerging markets.
4. Achieving launch in the early 2020s is a challenging aim, and we have already made available initial funding to potential UK spaceports and launch vehicle providers. We continue to offer advice and support to other companies interested in these opportunities. We now intend to provide additional support to companies capable of providing vital enabling services for spaceflight.
5. As part of our Industrial Strategy, the Government's Spaceflight Programme aims to kick-start small satellite launch and sub-orbital flight from UK spaceports. As technology evolves and reduces the cost of access to space, there is an exciting opportunity for the UK to thrive in the new space age.
6. The UK is well placed to host new commercial spaceflight services. We have the right business environment and the right industrial capability, and commercial range

services will support this.

Range Regulation

7. Section 6 of the Space Industry Act 2018 lists a number of tasks which, if conducted to secure the safety of a commercial launch, will require a range control licence. All expected operations, and particularly satellite launch, are expected to require some of the tasks to be completed in order to demonstrate safety. These tasks will be conducted by a licensed Range Control Provider (RCP). In summary, the four key range tasks are:
 - **Identification of appropriate range for a launch activity** – Analysing data from a launch vehicle operator and other sources, to contribute to a flight plan and safety analysis, including hazard areas or the ‘safety rules’ that might trigger the termination of a launch.
 - **Tracking of the craft** – The accurate and timely monitoring of a spaceflight vehicle’s trajectory, and comparison to the planned route, is vital to ensuring safety.
 - **Surveillance of the range** – Monitoring an area (or areas) that safety analysis has shown to be a hazard zone in the air, on land or at sea. It is possible that for safety reasons or international obligations, monitoring will be required both in the close vicinity to the launch location (near range) and further along a vehicle’s flight path, in areas like stage drop zones where risk is high (down range).
 - **Managing the boundaries of range hazard areas and issuing of notifications and warnings to keep clear** – Once analysis has suggested areas of risk or exclusion, a range control provider will need to formally identify which areas need to be subject to exclusion, restriction or warning, using the appropriate procedures for air, land and sea zones. The range control provider will be responsible for arranging notification of other users and the uninvolved general public to remain outside of these hazard areas, likely utilising established procedures such as Notice to Airmen (NOTAMS) or Notices to Mariners, and through physical warnings on land such as use of red flags.
8. While ultimate responsibility for flight termination will rest with the launch vehicle operator, a RCP might also have a role in ensuring that the craft follow pre-agreed flight safety rules, including advising when flight termination is necessary for safety.
9. A RCP licence holder can also hold additional licences to provide other services alongside range control, for example a spaceport operator licence or launch vehicle operator licence.
10. A key principle will be that an applicant for a range control licence will set out the services they intend to provide, and they will be licensed to provide those services if assessed as suitable to do so by the regulator. For example, a RCP might be licensed to provide tracking of vertical rockets up to a certain size, within certain meteorological tolerances. The regulator would assess the equipment and skills of the applicant, and

the licence would set out the parameters of the service they were authorised to provide. If a licensee wished to expand their operation into new areas, licence variations could add new services once they had been assessed.

Invitation to submit grant proposals

11. **We are inviting enterprises to submit applications for studies that develop a business plan and initial concept of operations to offer range services from the UK on a commercial basis.**
12. The Government aims to enable the commercial sector to provide all aspects of spaceflight activities. We believe range control services can be provided commercially, which will open an opportunity for UK and global businesses. Although some aspects of range control may be offered by the state elsewhere in the world, the current pace of commercialisation across the space sector may see this position change. Businesses that develop commercial range services now may benefit from being among the first to offer these services in a changing market.
13. This funding call aims to encourage industry to evaluate and build a business case for offering range control services. As we intend to see satellites launched from the UK in the early 2020s, we believe businesses must start to consider if and how to provide range control services now, to ensure they are in place ahead of any launch.
14. Proposals are invited for studies into how a business, or businesses working together, could provide all four of the range control tasks identified above in support of UK launch. If a consortium wishes to apply, a single lead organisation must be named as the recipient of our grant funding.
15. Although our preference is to receive proposals to consider providing all four range control tasks identified above, proposals from companies that wish to only study how to provide one, two or three of the range control tasks are also eligible. In these cases applicants will be expected to identify with whom they propose working with to provide all remaining range control activities, and what form of relationship will exist with these other providers. Proposals that do not seek to study all four of the range control tasks are expected to request a proportionate amount of funding.

Mandatory requirements

16. Proposals must include consideration of the UK operating environment and the expected benefits to the parties of operating from the UK. This might include market reports, as well as plans to adapt existing capabilities or engage with spaceport and launch vehicle organisations. Proposals should only consider the use or adaptation of commercially available capabilities – we will not consider proposals that rely on government equipment or capabilities.
17. As part of the application for funding, applicants must review and accept the terms of the UK Space Agency's published grant agreement. Only minor amendments will be considered. This will enable projects to start soon after evaluation has been

completed.

18. If awarded, our funding must be used to develop a business case and outline concept of operations that articulates how an organisation, or organisations, could operate commercial range services in the UK. The funding must also be used to build a costed business plan that considers both the initial and ongoing costs to the applicant or consortium. This should include costs for: developing and operating the proposed range services; anticipated revenue from the services offered; and available or desired sources of finance and return on investment.

19. The mandatory outputs of a successful project are listed below:

- **System requirements:** the bidder should specify the functional requirements for the system. These should be derived by performing a critical review of the operational requirements of prospective UK launch vehicle operators, or of the requirements of a specific vehicle. It is important to identify these at the beginning as they will flow down to every element of their operational concept.
- **System architecture:** the bidder should identify the top-level system architecture for the range facilities (i.e. the equipment and major components that will form the range infrastructure).
- **Concept of operations:** the bidder should identify the operational concept to support a launch campaign. This should define the interfaces, responsibilities and timeline for the operation.
- **End-to-end business case:** The bidder should develop an end-to-end business case defining income, capital expenditure that would need to be amortized and any fixed costs.
- **Design and development approach:** the bidder should identify how they will design, develop and test their proposed range service.

20. Following completion of all projects a briefing day will be held, where the outputs of each project are presented to a panel. The date, location and agenda for this briefing day will be confirmed once proposals have been selected.

Non-Mandatory considerations

21. To support current market demands, it is expected that range services will be developed with consideration to existing and potential UK spaceports and launch vehicle operators, although this is not mandatory. A proposal could examine either how to offer generic range services (how could businesses support any type of spaceflight) or how to support a specific spaceflight operation (how could a business support a specific vehicle launching from a specific location).

22. To enable multiple aspects of range services to come together, we envisage collaboration between multiple partners may be required. This call for proposals therefore provides an opportunity for global businesses, with experience of operating ranges in other nations, to work with UK industry or academia to bring their expertise

to the UK.

Funding

23. It is anticipated that the total funding available for all proposals will be approximately £600k. Following the evaluation process, only the top applications that sit within the Agency's overarching funding and affordability envelope will be funded. All projects should aim to complete by the end of March 2019. For exceptional proposals, some funding may be considered after March 2019.
24. Funding under this proposal would be provided as de minimis state aid. Under state aid rules, the maximum amount of de minimis funding that one organisation can receive in a 3-year rolling period is €200,000. The conversion will be calculated using the European Commission's rate on the date the grant is awarded. Please ensure you do not exceed your organisation's limit for de minimis funding. Further guidance on de minimis funding and the EC definition of company sizes is available at the following website:

<https://www.gov.uk/government/publications/state-aid-the-basics>
25. In addition to the grant funding requested, which is subject to the €200k de minimis ceiling specified above, applicants must contribute their own finance or resources to maximise project outcomes. Applicants must provide a minimum of 20% of the total project cost from their own resources or funding. For the avoidance of doubt, a maximum of 80% of the total project cost can be grant funded.
26. Grant payments will be made following successful completion of appropriate milestones. Milestone completion criteria will be agreed, linked to each milestone deliverable, with evidence required to demonstrate that each milestone has been completed successfully.
27. Enterprises that do not submit proposals for grant funding, or are not selected to be funded, may still be supported non-financially by the UK Space Agency. This may include sharing information, helping to set up links with new customers and facilitating international engagement.
28. Following the delivery of all completed projects selected for funding, the UK Space Agency will evaluate the requirement for any type of further support. Entering a proposal in response to this call for grant proposals, or having a proposal selected for funding, will not impact any party's ability to apply for any future funding.

Mandatory Eligibility and Scope

29. After the deadline for final submissions, valid applications will be sent for assessment. Only applications that meet the following mandatory eligibility criteria and scope of the call will be sent for assessment:

- Proposals do not rely on government equipment or capabilities;
 - Alignment with page counts and information requested in the Application Form;
 - Applicants provide a minimum of 20% of the total project cost from their own resources or funding;
 - Compliance with the requirement of the de minimis State Aid regulations and fully completed de minimis State Aid declaration – Annex D;
 - Registered or incorporated in a country that is a member of the Missile Technology Control Regime;
 - Acceptance of the terms and conditions of the UK Space Agency’s published grant agreement (only minor amendments will be considered);
 - Consideration of the UK operating environment and the expected benefits to the parties of operating from the UK.
30. For all projects, whether the application is being submitted as part of a consortium, or an individual organisation, there must be a single lead organisation. Grant funding will only be awarded to one lead organisation. That organisation will be responsible for disseminating any funding to other parties and will be solely accountable to the UK Space Agency for the use of grant funds.
31. The UK Space Agency reserves the right to declare applications as out of scope.

Evaluation Criteria

32. Applications that meet the mandatory eligibility criteria above will be assessed by an independent advisory panel. This panel will consist of independent UK Space Agency approved reviewers drawn from academia, industry or government.
33. Bids will be assessed against a range of criteria, with criteria weighted to reflect their relative importance to the final score. A copy of the scoring system and weighting is available alongside this document as Annex B. The criteria to be assessed will be:
- Benefit to the UK
 - Technical understanding of range services
 - Commercial understanding of range services
 - Sound management and planning
34. Assessors will provide feedback on each of the applications. All applications are assessed on individual merit. The UK Space Agency will make the final decision regarding funding, using the panel’s recommendations and wider relevant legal, policy and financial considerations.
35. To aid our consideration, Annex A provides guidance for all proposals.

Schedule

36. Figure 1 shows the full timetable for this call for grant funding. This funding call is open from 6 December 2018 and closes at 1200 (GMT) on 14 January 2019.

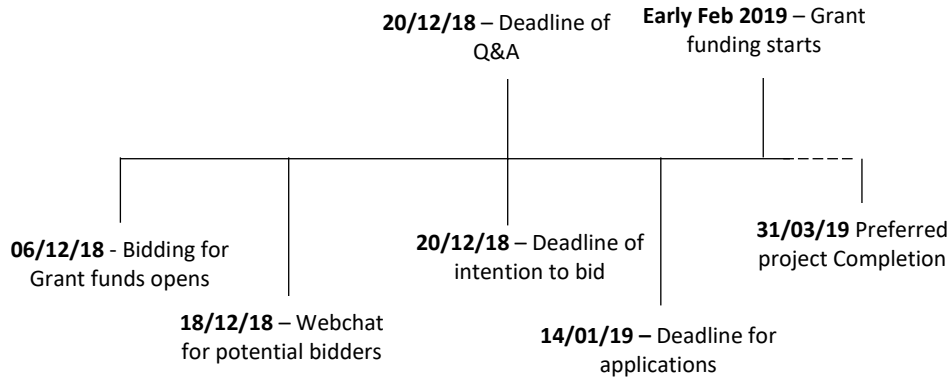


Figure 1: Timeline of grant call schedule

37. **A live webchat for businesses interested in submitting a proposal will be held on Tuesday 18 December 2018 from 1400-1600 (GMT).** During this session, questions can be asked in an open forum, which will either be answered during the session or given a written answer shortly afterwards. Businesses will not be obliged to reveal their identities during this webchat. Attendance will not confer any advantage on any potential bidder, and all questions and answers provided will be anonymised and made publicly available shortly after the forum has been held.
38. **The deadline for submitting Intention to Bid is 1200 (GMT) on 20 December 2018.** Applicants must notify the UK Space Agency of their intention to bid, by sending an email detailing the parties involved in the bid to: Spaceflight@UKSpaceAgency.gov.uk. This notification must be received by 1200 (GMT) on 20 December 2018. The purpose of this is to enable the UK Space Agency to gauge the expected number of responses and potential workload of proposal reviewers.
39. **The deadline for submitting any questions relating to this Announcement of Opportunity is 1200 (GMT) on 20 December 2018.** After this date, no further questions will be considered, and a final public update of questions and answers will be published.
40. **The deadline for submitting applications is 1200 (GMT) on 14 January 2019.** All applications must be submitted to the following email before the deadline to be eligible for funding: Spaceflight@UKSpaceAgency.gov.uk. Applications received after this will not be evaluated for funding.
41. Applications will be reviewed by a selected panel of experts shortly after the competition close date. Applicants will then be notified of the outcome of their proposal, with summary feedback provided to the unsuccessful applicants. Grant agreements with successful applicants are expected to be agreed shortly thereafter.
42. Following execution of agreed Grant Funding Agreements, successful proposals will be

expected to commence in early February 2019. The projects and parties selected for funding will be made public by the UK Space Agency at this time, along with the short abstract provided in the application form.

43. Milestones payments, made on completion of agreed and approved deliverables, can be requested following the execution of the grant agreements. All projects, milestones and associated activities are expected to complete by 31 March 2019 where possible. For exceptional proposals, some milestones may be accepted after March 2019.

Confidentiality

44. The procedure for handling and assessing the bids and notifications will be as follows:
 - a. Notifications of intention to bid and final proposals will be submitted to the Spaceflight programme team, using the following email address Spaceflight@UKSpaceAgency.gov.uk;
 - b. All proposals and notifications will be held in confidence by this team, which consists of officials from the UK Space Agency, Department for Transport and Civil Aviation Authority, except to be shared with BEIS and evaluation panellists.
 - c. Information relating to the proposals may also be shared with other UK government departments, agencies and arm's length bodies;
 - d. For those bids not recommended by the panel for funding, documentation will be retained by the UK Space Agency for reference. The proposals will not be visible to any others, and the names of any unsuccessful bidders will not be published;
 - e. Summary information on all successful proposals who receive grant funding will be made public, including the nature of the proposal and the identities of companies involved;
 - f. All other documentation relating to bids selected for funding will remain confidential within the UK government.
45. Information submitted as part of a proposal, or subsequent commercially sensitive information submitted as part of the grant agreement, will not be disclosed by us save for in so far as we consider necessary, in our absolute discretion, to comply with our legal obligations under the Freedom of Information Act 2000, Environmental Information Regulations 2004 or any other legal act, requirement or obligation. Where permitted by law we will attempt to notify you in advance and take your view as to the appropriate scope of any such disclosure.

Other

46. For the avoidance of doubt, the issue of this Announcement of Opportunity is not a commitment by the UK Space Agency to take forward or support any application. Any

expenditure, work or effort undertaken prior to an offer of support and acceptance thereof is a matter solely for the commercial judgement of your company, and the Government will not be held liable for any costs incurred by participants in connection with the application process.

47. Clarification questions are very welcome up until the date specified in point 37. Questions on this funding call should be addressed to:
Spaceflight@UKSpaceAgency.gov.uk.
48. The UK Space Agency will monitor any funded projects through regular project reports and updates, with payment milestones accompanied by a series of formal reviews.
49. The UK Space Agency reserves the right in its absolute discretion to:
- a. waive or change the requirements of this Announcement of Opportunity from time to time through a formal amendment, initiated by the Agency;
 - b. seek clarification in respect of a participant's proposal;
 - c. disqualify any participant that does not submit a compliant proposal in accordance with the instructions in this Announcement of Opportunity.
 - d. disqualify any applicant that is guilty of misrepresentation in relation to its proposal or the proposal process;
 - e. withdraw this Announcement of Opportunity at any time, or to re-invite proposals on the same or any alternative basis;
 - f. disqualify applicants where support may conflict with the government's foreign policy and international commitments or may pose a threat to national security;
 - g. choose not to support any proposal as a result of this proposal process.

Annexes

Annex A	Application Guidance
Annex B	Evaluation Criteria
Annex C	Application Form
Annex D	State Aid Letter of Evidence
Annex E	Grant Funding Agreement
Annex F	FAQs