

SOURCE SELECTION STATEMENT
for
Time-Resolved Observations of Precipitation Structure and Storm Intensity with a
Constellation of Smallsats (TROPICS) Mission Launch Services

The NASA Launch Services Program (LSP) is seeking a launch service (rideshare or dedicated launch) for the Time-Resolved Observations of Precipitation Structure and Storm Intensity with a Constellation of Smallsats (TROPICS) Mission which will require the launch service provider to deliver six CubeSats to three low-Earth orbital planes. The total payload mass, including all six CubeSat payloads, margin, dispensers, and isolators, will not exceed 56.04 kg. The resultant awardee will be responsible for planning, analysis, design, development, production, integration, and testing required to provide a launch vehicle system to transport the payloads into their operational orbit within a 120-day period (first insertion to final insertion) by July 31, 2022.

On February 10, 2021, as the Source Selection Authority (SSA), I met with the team that was appointed to evaluate proposals for award of the TROPICS contract. Relevant portions of the team's evaluation of proposals, and my decision on selection of the successful offeror is set forth in this Source Selection Statement.

PROCUREMENT HISTORY

The acquisition was conducted using other than full and open competitive procedures in accordance with Federal Acquisition Regulation (FAR) Part 6.302-5, "Authorized or required by statute." The Commercial Space Act of 1998, 51 U.S.C. § 50131, requires that all commercial space transportation services be procured from domestic providers.

A draft request for proposal (RFP) was posted to beta.SAM.gov on June 12, 2020 and prospective offerors were encouraged to submit questions/comments. Two (2) prospective offerors responded with questions/comments on to the draft RFP.

The RFP was posted to beta.SAM.gov on July 24, 2020 following review and consideration of industry questions/comments on the draft solicitation. The RFP sought proposals for a Firm Fixed Price (FFP) launch service contract. During the procurement, responses to questions were posted and there were no amendments issued.

In response to the RFP, the following five companies submitted timely proposals on or before the due date of August 31, 2020:

Astra Space, Inc. (Astra)
Momentus Inc. (Momentus)
Space Exploration Technologies Corp. (SpaceX)
Rocket Lab USA, Inc. (Rocket Lab)
Virgin Orbit, LLC.

After evaluation of initial proposals, the results were presented to me and senior advisors on December 4, 2020. The presentation included a detailed evaluation of each proposal and based

on this evaluation and discussion with the evaluation team, I determined it in the best interest of the Government to conduct discussions. A competitive range was established that included the following companies:

Astra
Momentus
SpaceX
Rocket Lab

Discussions commenced with the competitive range notifications issued on December 14, 2020 and concluded on January 11, 2021 with issuance of a request for Final Proposal Revisions (FPR). The FPR submission was requested by February 5, 2021. As part of discussions, each offeror was provided an opportunity to address any deficiencies, significant weaknesses, weaknesses, and aspects of the proposal requiring further clarification. All four companies submitted timely FPRs.

EVALUATION PROCEDURES

This acquisition is being conducted as a commercial, competitively negotiated, acquisition in accordance with FAR Part 12.203, Procedures for Solicitation, Evaluation, and Award, in conjunction with FAR Part 15.3, Source Selection, and NFS Part 1815.3, Source Selection. Selection and award will be made to the Offeror whose proposal will be most advantageous to the Government, price and other factors considered.

The RFP defined two evaluation factors, Technical/Management Capability and Price. The relative order of importance for these factors is Technical/Management Capability is approximately equal to Price.

The following summary from the RFP describes how the Technical/Management Capability factor was evaluated:

- i. Mission Solution: The ability to meet the TROPICS requirements described in the Attachments. The Offeror's knowledge, skill and understanding of the technical, managerial and operational details of launch vehicle testing, integration, check out, launch telemetry, and mission assurance. The Offeror's understanding of the approach to providing the required skills and demonstrated experience to conduct effective and safe launch operations.
- ii. Concept of Operations: The ability to implement the concept of operations, including approach to manifest management, managing multiple launches in the period between ATP and the insertion date(s), and the ability to obtain approval/licensing (i.e., FAA) to support the TROPICS insertion date(s). In addition, the risk associated with the proposed daily schedule from the initial TROPICS launch to the point of on orbit separation of the final set of spacecrafts into the required orbital plane.

- iii. Small Business Utilization: Assess the Small Business Subcontract Plan (Large business only) and the commitment to the small business program.
- iv. Statement of Acceptance/Summary of Exceptions: Proposals shall be prepared as prescribed in this RFP. Accordingly, the Government reserves the right to reject proposals determined unacceptable as described under NFS Part 1815.305-70, Identification of unacceptable proposals. Furthermore, proposals with exceptions to the terms and conditions, inaccurate conditional assumptions or new terms, conditions, or clauses may result in the proposal being determined unacceptable, may preclude award to an Offeror if award is made without discussions, or may otherwise affect an Offeror's competitive standing.
- v. Financial Stability: The Offeror will be evaluated on their approach to secure financing for the development, if required, of their launch service vehicle that does not rely solely on award of the TROPICS contract. The Offeror will be evaluated on their financial capability to provide the TROPICS mission services required and properly execute all requirements under a contract of this type and magnitude. This information may also be used to support a responsibility determination in accordance with FAR Subpart 9.1.

For the Price Factor, analysis was performed in accordance with Part FAR 15.404-1(b) to determine the reasonableness of the proposed price.

EVALUATION OF PROPOSALS

Utilizing the evaluation process, the team conducted an evaluation of the FPRs from the companies in the competitive range. The resulting technical/management capability evaluation and price evaluation of each offerors' FPR provided the basis for making a decision.

The following provides a summary of all open findings after FPR and the price analysis.

Technical/Management Capability Factor

Astra

In the evaluation of the services offered by Astra to meet the TROPICS requirements, the team identified one strength and one weakness.

Strength

Trajectory Analysis Exceeds Minimum Proposal Requirements: This strength was a result of the proposal including a 6-DOF monte-carlo analysis that exceeded the 3DOF requirement.

Weakness

Launch Site: A weakness was assigned for the proposed launch site due to risk assessed in development, range conflicts, and alternative launch sites. There was a single evaluator's

opinion included in the assessment that the range conflicts remain a significant weakness; however, the evaluation team's overall assessment was a weakness.

Momentum Inc. (Momentum)

In the evaluation of the services offered by Momentum to meet the TROPICS requirements, the team identified one significant strength, one strength, one significant weakness, and one deficiency.

Significant Strength

Launch Vehicle History: The significant strength was attributed to the level of certification already achieved for the proposed launch vehicle. This approach demonstrates that the proposed launch vehicle is mature, thereby minimizing risk and increasing the likelihood of mission success and successful contract performance.

Strength

Launch Approach: The proposed solution reduces the risk of delays by limiting the opportunity for launch ascent anomalies. By reducing this risk, Momentum's proposal increases the likelihood of successful contract performance.

Significant Weaknesses

Rideshare Approach: There is a significant increase in risk to meeting the required launch date since Momentum will not control the launch date and any single delay can erase all schedule margin. This risk is compounded by the amount of time it will take the payloads to reach the required orbits after launch. As a result, there is a significant risk to the schedule and increased likelihood of unsuccessful contract performance.

Deficiency

Launch Services Interface Requirements Document (LSIRD): The proposal did not demonstrate the ability to meet all requirements in the LSIRD and the proposal levy's a test requirement on the spacecraft. This results in a deficiency since not meeting all the LSIRD requirements places the government at extreme risk of unsuccessful contract performance.

SpaceX

In the evaluation of the services offered by SpaceX to meet the TROPICS requirements, the team identified one weakness and one significant weakness.

Weakness

FAA Licensing Impacts: A weakness was assigned because SpaceX's FPR did not clearly demonstrate progress toward the resolution of the environmental assessment which results in risk associated with obtaining an FAA launch license, increasing the likelihood of delays that would affect contract performance.

Significant Weaknesses

Risk to Launch Approach: SpaceX's FPR included the same integrated master schedule that was included in the initial proposal and does not indicate that any milestones scheduled for completion have been completed. As a result, there is significant risk in the proposed launch approach based on the required launch date and the current status of the proposed launch vehicle that increases the likelihood of unsuccessful contract performance.

Rocket Lab

In the evaluation of the services offered by Rocket Lab to meet the TROPICS requirements, the team identified one significant strength and two strengths.

Significant Strength

Demonstrated and Proposed Launch Cadence Exceeds Requirement: The significant strength was attributed to their proposed launch cadence on a dedicated launch vehicle which increases the likelihood of mission success based on the fact that the cadence proposed has been demonstrated and it results in schedule margin that produces a high degree of confidence that the offeror will meet the requirements.

Strengths

Launch Vehicle History: This strength was attributed to the number of successful launches to orbit of the proposed launch vehicle. Having several successful flights increases the likelihood of mission success and successful contract performance.

Trajectory Analysis Exceeds Minimum Proposal Requirements: This strength was a result of the proposal including a 6-DOF monte-carlo analysis that exceeded the 3DOF requirement.

Price

In accordance with FAR Part 15.404-1(b), a comparison of proposed prices was used for price analysis to determine reasonableness of the proposed prices. To be considered in this analysis the proposal needed to satisfy the Government's expressed requirement as described in FAR Part 15.403-1(c)(1). Since Momentus was evaluated with a deficiency, they have not met the expressed TROPICS requirements and, therefore, their price cannot be evaluated for reasonableness.

Of the remaining offerors, Astra had the lowest proposed price at \$7.95M. SpaceX had the next lowest proposed price and they were somewhat higher than Astra. Rocket Lab had the highest proposed price and was significantly higher than Astra.

Based on this assessment, the proposed price from Astra, SpaceX, and Rocket Lab were determined fair and reasonable based on comparison of proposed competitive prices received in response to the solicitation. To support this analysis, it was determined that adequate price competition existed because all offers were received from responsive and responsible offerors

that were competing independently, their proposals satisfied the Government's expressed requirements, and there was no finding that any of the prices are unreasonable.

DECISION

During the presentation, I was fully briefed on the procurement process and was given detailed evaluation materials concerning the proposals evaluated. I questioned the evaluation team on the material presented and carefully considered the detailed findings presented by the team.

In determining which proposal(s) offered the best value to NASA, I referred to following the relative order of importance of the evaluation factors specified in the RFP:

All evaluation factors other than price when combined are approximately equal to price.

The relative order of importance of these factors is that Technical/Management Capability is approximately equal to Price.

Utilizing these evaluation factors, the RFP also provides that the Government intends to award a firm fixed price contract to the responsible offeror, whose proposal conforming to the solicitation, will be most advantageous to the Government, price and other factors considered. I note that this allows me to make a selection based on other than the lowest price, in accordance with the trade-off process described in FAR Part 15.101-1. The selection rationale that follows was based on a comparative assessment of proposals against each of the source selection factors.

I began by reviewing the findings presented by the evaluation team within the Technical/Management Capability Factor. While I note that this decision is a product of my independent judgment, my review of the findings under this factor led me to adopt them as my own. I believe that the evaluation of each of the offerors' proposals was comprehensive, thorough and well documented. The resultant findings (i.e. significant strength, strengths, significant weaknesses, weaknesses, and deficiencies) captured by the evaluation team represent the relative merits of each proposal and are ultimately reflective of the overall quality of the technical solutions offered.

When I first look across the offerors, except for Rocket Lab, each company had varying degrees of risk assessed, with the most egregious being the deficiency assessed under Momentus' proposal. Since a deficiency constitutes a material failure of a proposal to meet a Government requirement, Momentus will not be considered for award.

In Astra and SpaceX's assessments, I see that both have risk associated with their proposed launch sites. SpaceX's launch site risk is with obtaining an FAA launch license in time to support orbital test flights. Whereas in Astra's case, their risk is associated with launch site development, range conflicts, and alternate launch site schedule delays. In addition, there was an opinion by one evaluator that Astra's risk with the range conflicts was a significant weakness. While I agree that range conflict is the greater risk here, I also agree with the overall risk assessment assigned to the finding since there are adequate mitigations that limit assignment of a significant weakness. Considering all of the information provided, I view Astra's risk higher in this area than SpaceX's risk. However, I also note that SpaceX's FPR has a significant weakness

attributed to risk in its launch approach based on the required launch date and current status of the proposed launch vehicle; this is more concerning to me than either company's launch site risk and therefore a clear delineator between these two companies. I also note that Astra did have a strength for its 6-DOF monte-carlo analysis, which is above the minimum requirements; although this is not a significant differentiator in my opinion. Therefore, when considering these two offerors and the risk assessed, Astra is the slightly higher rated proposal for the Technical/Management Capability factor.

As first noted above, Rocket Lab's proposal did not have any assessed risk and, when factoring in their assessed strengths, they are clearly the most technically superior of the three offerors still being considered for award. Their demonstrated ability to meet the proposed launch cadence (that exceeds the requirements), coupled with their repeated demonstrated successful launches to orbit, provides me with a high confidence in their technical capabilities. I also note that they did have a strength for performing a 6-DOF monte-carlo analysis, which is above the minimum requirements, but the significant differentiators with their proposal is the other strengths assessed and the fact that their proposal was absent any assessed risk.

I finally considered the offerors' respective prices. If the offeror's evaluation resulted in a deficiency under the Technical/Management Capability Factor, I did not consider the proposed price in my assessment since they did not meet the Government's expressed requirement and, therefore, the proposed price could not be determined reasonable.

Of the remaining offerors, I reflect on how Astra had the lowest proposed price at \$7.95M. SpaceX had the next lowest proposed price and they were somewhat higher than Astra. Rocket Lab had the highest proposed price and they were significantly higher than Astra.

In consideration of the foregoing discussion, I reflect on the relative order of importance of the evaluation factors specified in the RFP in which Technical/Management Capability is approximately equal to Price. Within this lens, I have the ability to trade-off in the award selection when it may be in the best interest of the Government to consider award to other than the lowest priced offeror or other than the highest technically rated offeror. In this context, it becomes evident that the only tradeoff for consideration here is between Astra and Rocket Lab.

I recognize that Astra has proposed a very competitive and appealing price, but they do not have the demonstrated experience and launch vehicle history Rocket Lab proposed and there is some technical risk. On the other hand, Rocket Lab's proposal was assessed with a high level of confidence in their Technical/Management Capability, but this high level of confidence comes at a price that is significantly higher than Astra's price. The decision to trade-up to the highest rated offeror requires consideration on if the technical benefits outweigh the increase in price. In this situation, after reviewing the benefits associated with Rocket Lab's proposal and Astra's assessed risk in combination with their significantly lower price, the technical benefits do not offset the significant difference in price. Therefore, it is not in the Government's best interest to trade up in price to the highest technically rated offeror.

Accordingly, after considering the above cited selection criteria, the findings of the evaluation team, and exercising my independent judgment, I hereby select Astra for award of the contract for the TROPICS launch service.

Scott Syring
Source Selection Authority
Commercial Space Office, OP-LS
Kennedy Space Center
National Aeronautics and Space Administration

2/23/2021
Date