Utilizing Public-Private Partnerships to Advance Tipping Point Technologies Appendix
NNH16ZOA001N-16STMD_001
Frequently Asked Questions

As of: August 4, 2016

1. Q: May a proposer submit a proposal from outside the U.S.?

   A: As stated in Section 3.0 of the draft Appendix: Proposed efforts to this Appendix must be led by U.S. industry, defined as for-profit businesses that are incorporated in the United States of America. NASA will not consider proposals that do not include a U.S. industry business as the lead offeror. However, this does not preclude U.S. for-profit companies that are incorporated and operate in the U.S. and also have an affiliation with a foreign firm. A lead offeror is defined as the proposing organization that will be entering into a contractual relationship with the Government. The offerors are encouraged to propose teaming arrangements (e.g., other industry partners, academia, non-profit, other government agencies, FFRDC, NASA civil servants, JPL) that optimize the potential for rapid development and infusion of the space technology. Teaming partners must also be U.S. domestic entities. However, this does not preclude teaming with U.S. for-profit companies that are incorporated and operate in the U.S. and also have an affiliation with a foreign entity. Also, it does not preclude teaming with non-profit U.S. domestic entities that operate in the U.S. and also have an affiliation with a foreign entity. The System for Award Management (sam.gov) will be reviewed to determine an offeror's country of incorporation.

2. Q: Are you only accepting comments from potential responders or can NASA centers also provide comments?

   A: Comments are welcome from anyone.

3. Q: Can development costs for the vehicle bus and/or payloads that have been incurred prior to the period of performance be counted as a contribution for the purpose of the 25% industry cost share?

   A: Section 4.0, subparagraph 3B states: Development costs for an item or a service that were incurred prior to the period of performance start date of the contract **cannot** be counted as a contribution.

4. Q: Both topics have an Entry TRL listed. At what point in the program does the technology need to be at that TRL? At the time of the proposal submissions (~end of Sep 2016)? Or could a technology be considered eligible if you have a

credible, funded plan for getting it to that TRL by the time of contract selection (~Jan 2017)? or by the time of start of contract (~June/July 2017)?

A: The table shown in Section 2.1 states the Entry TRL for each Topic. The Entry TRL is defined as the minimum TRL required at time of proposal submission. NASA anticipates making a language change to the final Tipping Point Appendix.

5. Q: Is "Net Price NASA Pays" (page 37) the same as "firm-fixed –price contract value" (page 19)? Are these also the same as "Value of Each Award" (page 10)? Is X in "X – Industry Contribution = firm-fixed-price contract value" (page 19) actually "Total Project Costs"?

   A: "Net Price NASA Pays" (Page 37) is the same as "firm-fixed-price contract value" on page 19 and "Value of Each Award" (page 10). X + Y = Total Project Costs. NASA anticipates making a language change to the final Tipping Point Appendix.

6. Q: Page 17 states "The price proposal shall include the total firm-fixed-price for the development project through completion." Furthermore, Page 10 states "In compelling cases, NASA may accept a proposal that exceeds the award values noted above." Since the total firm-fixed-price of the proposal needs to remain within the constraints of the table in Section 2.1 (Page 10), but NASA is seeking to maximize the value of its investment, is option pricing acceptable in the offer. If it is acceptable, how would NASA evaluation optioned capabilities and pricing be evaluated as part of the evaluation criteria?

   A: Options are not acceptable. NASA anticipates making a language change to the final Tipping Point Appendix.

7. Q: Can a bidder propose base scope with options that, in total, are less than or equal to the maximum award value? The intent would be to allow NASA to select portions of the development that it is interested in for funding.

   A: Options are not acceptable. The offeror should propose the full scope of the effort, but must stay within the award value noted in the Appendix. NASA anticipates making a language change to the final Tipping Point Appendix.

8. Q: In Section 3.5, it is stated that "selectees under this Tipping Point solicitation that have a qualifying Phase II are encouraged to also apply ... for an SBIR/STTR Phase II-E or Phase II-X …" Is this limited to NASA or does it include DARPA, Air Force, etc. as well?

   A: Technology efforts funded through the Tipping Point solicitation may be applicable to other government agency post Phase II initiative opportunities, but they are managed by the respective agency's SBIR program (DARPA, Air Force, etc.). Any questions on eligibility or process should be discussed directly with

those agencies. NASA anticipates making a language change to the final Tipping Point Appendix.

9. Q: We understand there is a limitation of one proposal per company per topic. Is there also a limitation to the number of proposals for which a company can be a subcontractor to another company's proposal?

   A: As stated in Section 3.1: "Lead offerors may act as partners on other lead proposals. A lead offeror is defined as the proposing organization that will be entering into a contractual relationship with the Government. However, an offeror can only be a lead on one proposal per topic. Individual proposals may NOT cross topics." There is no limitation to the number of proposals for which a company can act as a subcontractor. NASA anticipates making a language change to the final Tipping Point Appendix.

10. Q: Our organization has developed a plan for a project culminating in a flight demonstration that would develop and mature several technologies listed under the Example Technology Focus Areas for Topic 1: Small Launch Vehicle Technology Development. However, the intended end application and platform for demonstration is focused primarily toward in-space exploration rather than a small launcher. I'm wondering if there may be flexibility in this appendix to either add a third Tech Topic for Low-Cost In-Space Exploration Systems, or perhaps to allow demonstrations of overlapping technologies for Topic 1 on in-space platforms (i.e. on orbit or on a lunar transit trajectory rather than suborbital).

    ~~A: The scope of the topic is the development of small launch vehicle technologies that can significantly enable the emerging small launch vehicle market. If your technology has broad applications beyond enabling frequent launches of small spacecraft to LEO it would be considered within scope. However, the emphasis should be on addressing the use case described in the Topic. NASA anticipates making a language change to the final Tipping Point Appendix.~~

    Please refer to FAQ #48 for a revised response to this Question.

11. Q: For Topic 1, is there any preference to either smaller scope, component/subsystem-level projects with more focus on individual technology element demonstrations/tests versus larger scope projects focused on full-scale, integrated system development that may not reach testing within 24 months?

    A: Both types of projects are welcome. As outlined in the Topic 1 descriptions, NASA is interested in a broad range of small launch vehicle technologies that can significantly enable the emerging small launch vehicle market. NASA anticipates making a language change to the final Tipping Point Appendix.

12. Q: Just to clarify, at the end of the Technology Topic 1 suborbital technology demonstrations are referenced. The wording states that purchasing these

services are the responsibility of the offeror. Does this mean that proposers would be precluded from proposing to the flight opportunities program for flights which may enhance the proposed development program?

A: Proposers to this solicitation would not be precluded from proposing to STMD Flight Opportunities Program opportunities or other STMD funding opportunities. NASA anticipates making a language change to the final Tipping Point Appendix.

13. Q: With respect to Technology Topic 1 is there interest in small-satellites to destinations beyond LEO such as MEO, GEO, or beyond to support scientific and exploration mission objectives for commercial and NASA needs?

    A: The scope of the topic is the development of small launch vehicle technologies that can significantly enable the emerging small launch vehicle market. If your technology has broad applications beyond enabling frequent launches of small spacecraft to LEO it would be considered within scope. However, the emphasis should be on addressing the use case described in the Topic. NASA anticipates making a language change to the final Tipping Point Appendix.

14. Q: The term in Topic 2 “satellite” implies applications limited to orbiting the Earth or other bodies. Some cubesat missions could have outward bound trajectories toward the asteroid belt or even planned impacts. We suggest using the term “small spacecraft.”

    A: Agreed. NASA anticipates making a language change to the final Tipping Point Appendix.

15. Q: While there is mention of possible mission applications for locations beyond Low Earth Orbit, there is no mention of the associated propulsion for these missions, only propulsion for proximity operations and orbital maneuvers. We suggest adding "in-space propulsion."

    A: Agreed. NASA anticipates making a language change to the final Tipping Point Appendix.

16. Q: While there is mention of possible biological and physical sciences missions, there is no mention of enabling technologies for sample return. We suggest adding "enabling technologies for sample return" in the biological and physical sciences missions section.

    A: Agreed. NASA anticipates making a language change to the final Tipping Point Appendix.

17. Q: Page iii and page 7 state that “a space technology is at a tipping point if an investment in a ground development/demonstration or a flight demonstration will result in a significant advancement of the technology’s maturation …” However,

in Section 1.3.2 Topic 2: Small Satellite Technology Flight Demonstration Mission, page 9, it is stated that the objective of this topic "… is to advance small spacecraft capabilities through a flight demonstration …" Would NASA STMD consider revising the objective of this topic to include ground demonstrations as well as flight demonstrations?

A: The objective of Topic 2 is to advance small spacecraft capabilities through a flight demonstration. A ground demonstration or non-flight demonstration only is not within the scope of this Topic. NASA anticipates making a language change to the final Tipping Point Appendix.

18. Q: Does the selection of the technologies for the STMD proposal allow for technology integration into payloads as well as the launch vehicle? The Draft appendix seems to suggest that the opportunities for integration are primarily used for the launch vehicle but omits the specific phrasing to use the technology for deep space payload utilization. The technologies in question to be used in deep space transit are low cost avionics, remote sensing applications, and autonomous flight safety systems.

~~A: The scope of the topic is the development of small launch vehicle technologies that can significantly enable the emerging small launch vehicle market. If your technology has broad applications beyond enabling frequent launches of small spacecraft to LEO it would be considered within scope. However, the emphasis should be on addressing the use case described in the Topic. NASA anticipates making a language change to the final Tipping Point Appendix.~~

Please refer to FAQ #49 for a revised response to this Question.

19. Q: For a tech demo, do the launch and beginning of data acquisition need to fit within the 24 month period of performance, or does the complete demo and data reduction need to fit?

~~A: NASA anticipates making a language change to the final Tipping Point Appendix.~~

Please refer to FAQ #50 for a revised response to this Question.

20. Q: In reference to the 24 month period of performance-- what if the tech demo takes a long time? If the mission must be completed within 24 months, can an extended mission be part of our cost share?

A: The complete industry contribution requirement must be realized during the maximum awarded period of performance. NASA anticipates making a language change to the final Tipping Point Appendix.

21. Q: When you say on page 9 "Small satellite flight demonstrations proposed under this topic should include a complete, end-to-end mission," is a technology demonstration mission applicable? Ie if the technologies you wanted to infuse related to cubesat propulsion, would a mission where the cubesat executed maneuvers similar to future missions be applicable? Or does it need to be wrapped into a more sophisticated mission involving some sort of scientific payload in addition to the technology you're trying to demonstrate?

    ~~A: Topic 2 pertains to a flight demonstration of a mission-capable technology system, not an operational mission. NASA anticipates making a language change to the final Tipping Point Appendix.~~

    Please refer to FAQ #51 for a revised response to this Question.

22. Q: The solicitation states an objective for Technology Topic 2: Small Satellite Technology Flight Demonstration Mission to plan a mission that would launch and provide data within 24 months of contract start. I wanted to confirm that this isn't necessarily a requirement for Topic 1, but would also like to know if there are any concrete objectives as far as the finishing milestone or ending TRL at the end of the 24 months allotted for period of performance?

    A: The offeror should outline project objectives and major milestones specific to their proposed effort. Section 5.0 of the solicitation states that the overall Technical Approach will be evaluated, including the extent to which the proposed effort is aligned with the goals and objectives of the solicited technical topic area and the extent to which the proposed effort represents a feasible, sound technology development work plan to accomplish the objectives of the effort within the proposed time period.

23. Q: An area that could make the satellite component significantly more impactful is the level of funding. We realize that NASA's budget is challenging and an in-space satellite mission could be done for $2.5M. However, a much greater demonstration of new technologies and scientific validity could be performed with a higher cap. A recommendation would be to raise the cap to $5M and have 3-5 awards for a total of $15M for satellite missions. This higher cap would enable much bolder missions and new instrument development that could inform future NASA mission architectures. We would like to perform a significant mission with NASA that could lead to a new approach to science and exploration.

    A: NASA does not intend to raise the firm-fixed-price contract value.

24. Q: Page 9 and Page 29 state that the work plan needs to include decommissioning as part of the mission. Does this imply an active or passive deorbit capability? Will you evaluate a deorbiting capability as part of the Technical and Management Approaches evaluation?

A: The proposal must address the end of life plan for the spacecraft, which might be to deorbit or might be to passively decay from orbit. In any case, the mission must comply with the 25-year orbit lifetime limit.

25. Q: Page 18 and Page 22 state that the offer and proposal shall make a "… case that the most affordable approach possible to technology advancement is pursued." Furthermore, NASA seeks maturation of multiple technologies under Topic 2. The demonstration of multiple technology areas under Topic 2 in a single mission might be the most cost efficient method of maturation, but it may not be the most cost affordable on a per-technology basis. In other words, a mission that demonstrates multiple technology areas would maximize the government investment value but a mission demonstration a single technology area would be the lowest, most affordable, per mission price. Is there increased or decreased value given to proposals that include multiple technology areas within a single topic and how are these missions evaluated and compared against lower price, single technology area missions?

    A: The Evaluation Criteria does not distinguish increased or decreased value for multiple technologies within a single topic. NASA cannot provide guidance on the approach an offeror should propose.

26. Q: I had a number of general questions regarding this draft solicitation, all related to topic 2. In particular:

    a. Are the example technologies areas listed all inclusive? Or are they focused on a particular market, such as for LEO? They appear to have a general inclination towards LEO and away from areas such as planetary exploration, such as EDL technologies.

        A: The technologies and applications listed are examples only. Any technology that has both commercial and NASA/OGA application is within scope. NASA cannot provide further guidance on specific technologies.

    b. Is hardware implied here, or might capabilities be in play as well? Such as, "algorithms for navigation of small spacecraft during landing", versus, "sensors for use during navigation and landing." I.e. does NASA prefer hardware development?

        A: Hardware and software are both of interest.

    c. Can you clarify if technologies where the primary application is not-LEO, and specifically geared towards small spacecraft missions to planets will be applicable?

A: Any technology that has both commercial and NASA/OGA application is within scope. NASA cannot provide further guidance on specific technologies.

27. Q: A flight mission for about $3M is a major challenge. Please provide clarity with examples for types of missions NASA believes are possible for such a small amount of money. Launch costs can be much larger than $2.5M.

    A: To clarify, Topic 2 pertains to a flight demonstration of a mission-capable technology system, not an operational mission. We expect that accomplishing a technology demonstration mission for less than $3 million is challenging but we believe it is possible. NASA does not intend to raise the firm-fixed-price contract value for Topic 2.

28. Q: The Commercial Space Technology Development RFI (NNH16ZOA001L, issued 1/14/16) states “Approaches to achieving technology demonstrations and maturation without performing a full spaceflight demonstration are of significant interest. For example, technology maturation approaches where a ground demonstration of a flight-like engineering/test unit or a key component technology would suffice to advance the technology to commercial readiness.” However, the draft appendix (NNH16ZOA001N, released 6/28/16) now states “Small satellite flight demonstrations proposed under this topic should include a complete, end-to-end mission. … Missions proposed under this topic should plan to launch and provide data to NASA within 24 months of contract start. Proposals that include flight demonstration of specific technologies to enable greater capabilities for commercial and government small spacecraft users are of particular interest. Example technology areas include high-band-width communication from space to ground, inter-satellite communication, relative navigation and control for swarms and constellations of small satellites, precise pointing, increased power generation and energy storage, thermal management, system autonomy, miniaturized instruments and sensors, robotic assembly, and propulsion for proximity operations and orbital maneuvers.” In light of this revision, will there be any provision in the final Tipping Point solicitation for awards for non-flight demonstrations?

    A: The objective of Topic 2 is to advance small spacecraft capabilities through a flight demonstration. A non-flight demonstration only is not within the scope of this Topic. NASA anticipates making a language change to the final Tipping Point Appendix.

29. Q: How does NASA intend to verify the final, end of program, Industry Contribution compliance?

    A: It is not NASA’s intent to verify the final industry contribution at project completion. However, as stated in Section 5.0 of the solicitation, the proposed

contribution will be evaluated to ensure compliance to specific contribution restrictions.

30. Q: There appears to be an error in the date on the Tipping Point solicitation website. It mentions the Virtual Forum will take place on June 20th…Should this be July 20?

    A: Yes, you are correct. The Virtual Forum will be July 20. The website will be updated accordingly.

31. Q: If equipment, property, or facility has been purchased has started before the Anticipated Start Date, but payments will continue through the Tipping Point proposed program, will NASA still consider it as part of the Industry Contribution of 25%?

    A: Section 4.0, subparagraph 3B states: "Note: Something that is proposed as a non-cash contribution for the project may be counted as a contribution at the time-use equivalent current fair market value, even though it may have been acquired at some point in the past."

32. Q: Can additional information be provided in terms of intellectual property and invention rights? The previous appendix specifically acknowledged that Bayh-Dole would apply to small businesses but the new appendix does not make a similar reference. Is it expected that the resulting contracts would be subject to the rights included in Bayh-Dole or is this a point to be further negotiated after award? I am also curious how the award expects to account for inventions and/or contributions resulting from the cost-share component of the proposed effort. Would invention, IP, and data rights that can be traced to cost-sharing be subject to the same NASA ownership rights, licensing, and march-in rights as the base award of federal funds?

    A: The appendix Section 2.6.2 specifically refers to the applicability of 35 U.S.C. 202, which is the Bayh-Dole Act. All awards to small business firms and nonprofit organizations (which include universities), are subject to Bayh-Dole.

    With respect to inventions resulting from the cost-share component, Bayh-Dole rights still apply to small business firms and nonprofit organizations. Such entities may elect to retain title to any inventions made under an award, subject to government use license and march-in rights. Large business entities who request, and are subsequently granted, a patent waiver will be eligible to obtain title in inventions they make under an award, subject to government use license and march-in rights.

33. Q: Is the TRL Entry Level listed in the table in Section 2.1 of the draft appendix a requirement or a goal?

A: It is a requirement and will be evaluated. Section 5.0 evaluation criterion language: “The extent to which the entry TRL specified in the proposed effort is justified in the proposal and appropriate for the solicited technical topic.”

34. Q: What is NASA’s interest level in working with startup companies that are pre-funding at the time of proposal submission but are planned to be funded by the Award Date to meet the industry contribution requirement? The underlying assumption is that the company is leveraging technology previously developed to a sufficient TRL and aligned with the tipping point definition.

    A: It is up to the offeror to establish how it will meet the 25% industry contribution that will be evaluated during the evaluation process. As is stated in Section 5.0, the strength and clarity of the Letters of Industry Contribution Commitment, particularly any proposed contributions - including amount, purpose, source, and status, will be evaluated. The extent to which contribution commitments meet or exceed the 25% contribution requirements and are met during the potential awarded contract period of performance will also be evaluated.

35. Q: In Section 2.1, it is stated that “In compelling cases, NASA may accept a proposal that exceeds the award values noted above.” Please elaborate on what might be considered “compelling” by NASA STMD.

    A: NASA will delete this language from the final Tipping Point Appendix. Proposal costs should remain within the maximum budgets outlined in the solicitation.

36. Q: How would NASA IR&D costs not reimbursed under this opportunity count toward the 25% industry contribution?

    A: Per Section 4.0, Subparagraph 4B, Government contributions cannot count towards the 25% industry contribution and no Sunk costs are allowed.

37. Q: On page 19, the computation of the required industry contribution is described. It shows that X=all offeror costs, Y=total NASA costs and X+Y=Total Project Cost. It then shows that 25%* Total Project Cost =the minimum industry contribution required. That the minimum industry contribution is inflated by total NASA costs seems to discourage partnering with NASA because it drives up the amount that industry cannot recover under the firm fixed price contract. Please consider basing the 25% minimum industry contribution on X, all offeror costs.

    A: Offerors are encouraged to use the most affordable approach possible for the technology advancement - see Section 4.0, subparagraph 3A. Therefore, the industry contribution applies to the total project costs, regardless of where work tasks are performed.

38. Q: On Page 19, it states that “Potential SBIR funding WILL NOT count towards the 25% contribution requirements …”. What about actual SBIR funding, for example, an active Phase I contract?

    A: As stated in the Appendix Section 4.0, Subparagraph 3B, “Contributions coming from government organizations **WILL NOT** count towards the 25% requirement (U.S. Government contributions may count for contributions in excess of the 25%).”

39. Q: Can a non-US university be on the team?

    A: The offerors are encouraged to propose teaming arrangements that optimize the potential for rapid development and infusion of the space technology. Teaming partners must also be U.S. domestic entities. However, this does not preclude teaming with U.S. for-profit companies that are incorporated and operate in the U.S. and also have an affiliation with a foreign entity. Also, it does not preclude teaming with non-profit U.S. domestic entities that operate in the U.S. and also have an affiliation with a foreign entity.

40. Q: What frameworks/mechanisms/procedures are in place for small businesses or a Principal Investigator to partner with another larger offeror to contribute to proposals and work effort under the Final Appendix?

    A: The Government does not provide guidance on how to establish an eligible team. It is up to the potential offeror to determine how best to partner with other potential offerors to establish a team that meets the eligibility requirements.

41. Q: While there is mention of possible human exploration missions; only sensors, imaging, and telecommunications are mentioned. We suggest adding "enabling technologies for sample return" in the human exploration missions section.

    A: NASA does not intend to change this language.

42. Q: Company proposals will be evaluated for their potential use by commercial entities, NASA and other government agencies. Since Letters of Support are not allowed, are we expected to 'prove' such potential use by some other means, or just list our forecast of such use in the text?

    A: The offeror is expected to articulate evidence of potential use. See Relevance Evaluation Criterion in Section 5.0.

43. Q: If you have a technology that is less than the required Entry TRL at the time of proposal, could you propose using some or all of your required cost-share to raise that TRL to the required level before the start of the main contract?

A: No, the Entry TRL is defined as the minimum TRL required at time of proposal submission. The Industry contribution cannot be used to raise the TRL prior to start of the contract. See Section 4.0, subparagraph 3B for industry contribution requirements/restrictions.

44. Q: Are proposals limited to only the technology areas included on page 9 of the draft?

    A: Yes, page 9 contains the two topics being considered under this Appendix.

45. Q: Please provide clarification of the 25% Industry Contribution. For example, if the maximum value of award from NASA Is $2.5M for Topic 2 and this would be 75% of total proposed firm-fixed-price, the Industry Contribution would be at least 1/3 of $2.5M or $833K. Total contract value would be $3.33M. Minimum industry contribution is the amount needed to get the maximum amount from NASA. Is this correct?

    A: The “Value of Each Award” listed in the table in Section 2.1 is the maximum possible value of the awarded firm-fixed-price contract. See Section 4.0, subparagraph 3B on industry contribution.

46. Q: The proposal states "However, an offeror can only be a lead on one proposal per topic." My comment would be to request that offeror's be permitted to submit more than one proposal per topic. A firm may have multiple technology areas which are at the appropriate TRL level and would demonstrate appropriate public/private benefit, but one may be of more interest to NASA - this would minimize the risk of guessing wrong.

    A: The language will not be changed. However, the following definition of “offeror” will be added to the Appendix. The term “offeror” applies to a company or separate business unit within the company.

47. Q: It's clear from the draft appendix what limitations exist on U.S. vs. non-U.S. company participation (i.e., leads and partner companies must be domestic, U.S.-based entities). There exist some number of companies outside the U.S. that offer Commercial-Off-the-Shelf (COTS) style components and subsystems applicable to launch vehicles, satellites, and spacecraft. Examples include star trackers, attitude/rate sensors, solar arrays and power conditioning and distribution systems, etc. Many of these can be purchased in one-time, simple "transactional" exchanges (a purchase order or even a credit card). Thus these foreign companies would not be named partners on the proposal, but simply serve as vendors (along with other U.S-based vendors) that supply necessary components and subsystems to the overall effort.

    If there are limitations imposed in the use of government funds on foreign companies and suppliers, perhaps one idea to allow this would be to limit total

expenditures of those procurements to within the cash value of any company contribution? For example if a lead company on a proposal is proposing $750k in total contributions, $250k in materials/direct labor and $500k in cash, that company's expenditures on any major non-domestic systems/components might be limited to $500k.

A: Per Section 3.3: Foreign Participation in SpaceTech-REDDI-16, and NASA FAR Supplement 1835.016-70: Foreign Participation under Broad Agency Announcements (BAAs) – “The direct purchase of supplies/services, which do not constitute research, from non-U.S. sources by U.S. award recipients is permitted, subject to the provisions or terms of the award.” No cost limit is specified.

48. Q: Our organization has developed a plan for a project culminating in a flight demonstration that would develop and mature several technologies listed under the Example Technology Focus Areas for Topic 1: Small Launch Vehicle Technology Development. However, the intended end application and platform for demonstration is focused primarily toward in-space exploration rather than a small launcher. I’m wondering if there may be flexibility in this appendix to either add a third Tech Topic for Low-Cost In-Space Exploration Systems, or perhaps to allow demonstrations of overlapping technologies for Topic 1 on in-space platforms (i.e. on orbit or on a lunar transit trajectory rather than suborbital).

    A: NASA will not be adding a third topic, nor will NASA allow demonstrations of overlapping technologies on in-space platforms. However, refer to the final appendix for topic revisions regarding utilization beyond LEO.

    This response replaces the FAQ #10 response.

49. Q: Does the selection of the technologies for the STMD proposal allow for technology integration into payloads as well as the launch vehicle? The Draft appendix seems to suggest that the opportunities for integration are primarily used for the launch vehicle but omits the specific phrasing to use the technology for deep space payload utilization. The technologies in question to be used in deep space transit are low cost avionics, remote sensing applications, and autonomous flight safety systems.

    A: Small spacecraft system demonstrations proposed under this topic should include a complete, end-to-end mission. The mission should employ a capable spacecraft and ground infrastructure with a clear application to a commercial mission and to one or more future NASA missions. The mission should demonstrate a system capability, such as a remote sensing system, and not just a subsystem technology. Support of an operational mission is not precluded. The proposal should describe the minimum mission success criteria and the objective data that will be used to assess the outcome. Refer to the final appendix for topic revisions.

This response replaces the FAQ #18 response.

50. Q: For a tech demo, do the launch and beginning of data acquisition need to fit within the 24 month period of performance, or does the complete demo and data reduction need to fit?

    A: Missions proposed under this topic should plan to launch and provide data demonstrating mission success back to NASA within 30 months of contract start. Refer to the final appendix for topic revisions.

    This response replaces the FAQ #19 response.

51. Q: When you say on page 9 "Small satellite flight demonstrations proposed under this topic should include a complete, end-to-end mission," is a technology demonstration mission applicable? Ie if the technologies you wanted to infuse related to cubesat propulsion, would a mission where the cubesat executed maneuvers similar to future missions be applicable? Or does it need to be wrapped into a more sophisticated mission involving some sort of scientific payload in addition to the technology you're trying to demonstrate?

    A: Small spacecraft system demonstrations proposed under this topic should include a complete, end-to-end mission. The mission should employ a capable spacecraft and ground infrastructure with a clear application to a commercial mission and to one or more future NASA missions. The mission should demonstrate a system capability, such as a remote sensing system, and not just a subsystem technology. Support of an operational mission is not precluded. The proposal should describe the minimum mission success criteria and the objective data that will be used to assess the outcome. Refer to the final appendix for Topic 2 revisions.

    This response replaces the FAQ #21 response.