

National Aeronautics and Space Administration



Collaborations for Commercial Space Capabilities

**Space Act Agreement
SAA-QA-14-18881**

Effective Date: December 18, 2014



AMENDMENTS AND HISTORY LOG

Status	Amend No.	Effective Date	DESCRIPTION
Baseline	N/A	12/18/14	Baseline Space Act Agreement

NONREIMBURSABLE SPACE ACT AGREEMENT
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AND ATK SPACE SYSTEMS INC.
FOR COMMERCIAL SPACE CAPABILITIES COLLABORATION

ARTICLE 1. AUTHORITY AND PARTIES

In accordance with the National Aeronautics and Space Act (51 U.S.C. § 20113), this Agreement is entered into by the National Aeronautics and Space Administration (hereinafter referred to as "NASA") and ATK Space Systems Inc. located at 5050 Powder Mill Rd., Beltsville, MD 20705 (hereinafter referred to as "Partner" or "ATK"). NASA and Partner may be individually referred to as a "Party" and collectively referred to as the "Parties".

ARTICLE 2. PURPOSE

The purpose of this Agreement is to facilitate ATK's anticipated development of space logistics, hosted payload and other space transportation capabilities. The scope of the activity and alignment with NASA's strategy for human space exploration is described in the Executive Summary in Appendix 1. NASA is committed to advance commercial space-related efforts by facilitating access to NASA's vast spaceflight resources including technical expertise, assessments, lessons learned, and data. Access to additional Government resources such as facilities, services, and technologies may be considered on a cost reimbursable basis and may require the negotiation of a separate Reimbursable Space Act Agreement with the appropriate NASA center or facility providing the requested resources. Initially, this Agreement will not include support from NASA's Satellite Servicing Capabilities Office at Goddard Space Flight Center. If agreed to by both Parties, future support from NASA's Satellite Servicing Capabilities Office may be added by amending this agreement. NASA's Commercial Space Capabilities Office is partnering with ATK, through this Agreement, to provide insight and assistance to ATK in its attempt to develop space logistics, hosted payload and other space transportation capabilities. This Agreement also serves to provide NASA greater understanding of the development of ATK's capabilities.

ARTICLE 3. RESPONSIBILITIES

A. NASA will use reasonable efforts to:

1. Provide a point of contact for ATK within the Commercial Space Capabilities Office within 30 days after the effective date of this Agreement.
2. Through the Commercial Space Capabilities Office, NASA may provide access to requested NASA technical data, lessons learned, and expertise support as resources permit. The release of NASA Data to ATK is within NASA's sole discretion and this Agreement

shall not obligate NASA to provide access to or disclose any Data that NASA deems appropriate to control.

3. Review data provided by ATK.
4. Attend quarterly meetings with ATK regarding the past quarter's milestones and upcoming activities.
5. Within 30 days of each quarterly meeting, provide ATK a written acknowledgement of milestone completion if NASA ascertains that the milestones of the previous quarter have been accomplished. Nothing in the acknowledgement of milestone completion shall be construed to imply that NASA endorses or sponsors any Partner product or service resulting from activities conducted under this Agreement. NASA's acknowledgement shall not be construed to imply approval or endorsement of the safety, reliability or appropriateness of any Partner design, system, architecture or testing methodology.
6. Attend and observe ATK milestones, at its discretion and after coordination with Partner.

B. Partner will use reasonable efforts to:

1. Conduct its development program according to the milestones identified in Article 4 of this Agreement.
2. Provide NASA progress reports towards the milestones.
3. Conduct a quarterly meeting with NASA regarding the past quarter's milestones, demonstrating that the success criteria have been met, and discuss upcoming activities.

ARTICLE 4. SCHEDULE AND MILESTONES

The planned major milestones for the activities defined in the "Responsibilities" Article are as follows:

Milestone	Title	Success Criteria	Planned Achievement Date
M1	Contract Signed for MEV 1-4	ViviSat signs term sheets with customers for space logistics services with MEVs	██████
M2	Financing Secured for MEV 1-4	ViviSat secures sufficient financing to execute MEVs	██████
M3	ATP for MEV 1-4	ViviSat awards ATK with contract to build MEV	██████
M4	SRR for MEV 1-4	ATK holds Systems Requirements Review (SRR) for MEV (ATK Internal Standard)	██████
M5	PDR for MEV 1-4	ATK holds Preliminary Design Review (PDR) for MEV (ATK Internal Standard)	██████
M6	ATP for MEV-5 and MEV-SEP	ViviSat awards ATK with contract to build MEV-5 and MEV-SEP (Solar Electric Propulsion)	██████

M7	CDR for MEV 1-4	ATK holds Critical Design Review (CDR) for MEV (ATK Internal Standard)	██████
M8	Sep Ring Grabber Prototype	ATK completes the assembly of a separation ring (or hard point) grabber prototype	██████
M9	Ground operator interface requirements	RPO ground operator interface requirements for MEV space logistics services	██████
M10	Ground system prototype	ATK completes ground operator interface prototype for testing and validation for remote operation	██████

ARTICLE 5. FINANCIAL OBLIGATIONS

A. No Transfer of Funds

There will be no transfer of funds between the Parties under this Agreement and each Party will fund its own participation. All activities under or pursuant to this Agreement are subject to the availability of funds, and no provision of this Agreement shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, (31 U.S.C. § 1341).

B. Independent Research and Development Acknowledgment

NASA acknowledges that research and development costs incurred by the Partner, or a Related Entity, pursuant to this Agreement are incurred at Partner’s sole expense and therefore may be considered allowable independent research and development (“IR&D”) costs on contracts, so long as the work performed under this Agreement would otherwise be allowed as contractor IR&D in the absence of this Agreement. The Agreement is not sponsored by a grant and the research and development performed under this Agreement is not required in the performance of any contract.

ARTICLE 6. PRIORITY OF USE

Any schedule or milestone in this Agreement is estimated based upon the Parties' current understanding of the projected availability of NASA goods, services, facilities, or equipment. In the event that NASA's projected availability changes, Partner shall be given reasonable notice of that change, so that the schedule and milestones may be adjusted accordingly. The Parties agree that NASA's use of the goods, services, facilities, or equipment shall have priority over the use planned in this Agreement. Should a conflict arise, NASA in its sole discretion shall determine whether to exercise that priority. Likewise, should a conflict arise as between two or more non-NASA Partners, NASA, in its sole discretion, shall determine the priority as between those Partners. This Agreement does not obligate NASA to seek alternative government property or services under the jurisdiction of NASA at other locations.

ARTICLE 7. NONEXCLUSIVITY

This Agreement is not exclusive; accordingly, the Parties may enter into similar agreements for the same or similar purpose with other private or public entities.

ARTICLE 8. LIABILITY AND RISK OF LOSS

A. Each Party hereby waives any claim against the other Party, employees of the other Party, the other Party's Related Entities (including but not limited to contractors and subcontractors at any tier, grantees, investigators, customers, users, and their contractors or subcontractor at any tier), or employees of the other Party's Related Entities for any injury to, or death of, the waiving Party's employees or the employees of its Related Entities, or for damage to, or loss of, the waiving Party's property or the property of its Related Entities arising from or related to activities conducted under this Agreement, whether such injury, death, damage, or loss arises through negligence or otherwise, except in the case of willful misconduct.

B. Each Party further agrees to extend this cross-waiver to its Related Entities by requiring them, by contract or otherwise, to waive all claims against the other Party, Related Entities of the other Party, and employees of the other Party or of its Related Entities for injury, death, damage, or loss arising from or related to activities conducted under this Agreement. Additionally, each Party shall require that their Related Entities extend this cross-waiver to their Related Entities by requiring them, by contract or otherwise, to waive all claims against the other Party, Related Entities of the other Party, and employees of the other Party or of its Related Entities for injury, death, damage, or loss arising from or related to activities conducted under this Agreement.

C. With respect to products or processes resulting from a Party's participation in an SAA, each Party that markets, distributes, or otherwise provides such product, or a product designed or produced by such a process, directly to the public will be solely responsible for the safety of the product or process.

ARTICLE 9. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

A. General

1. "Related Entity" as used in this Data Rights Article means a contractor, subcontractor, grantee, or other entity having a legal relationship with NASA or Partner that is assigned, tasked, or contracted to perform activities under this Agreement.

2. "Data" means recorded information, regardless of form, the media on which it is recorded, or the method of recording.

3. “Proprietary Data” means Data embodying trade secrets developed at private expense or commercial or financial information that is privileged or confidential, and that includes a restrictive notice, unless the Data is:
 - a. known or available from other sources without restriction;
 - b. known, possessed, or developed independently, and without reference to the Proprietary Data;
 - c. made available by the owners to others without restriction; or
 - d. required by law or court order to be disclosed.
4. Data exchanged or disclosed under this Agreement is exchanged or disclosed only for purposes of this Agreement, except as otherwise provided herein.
5. Notwithstanding any restrictions provided in this Article, the Parties are not restricted in the use, disclosure, or reproduction of Data provided under this Agreement that meets one of the exceptions in 3. above. If a Party believes that any exceptions apply, it shall notify the other Party before any unrestricted use, disclosure, or reproduction of the Data.
6. The Parties will not exchange preexisting Proprietary Data under this Agreement unless authorized herein or in writing by the owner.
7. If the Parties exchange Data having a notice that the Receiving Party deems is ambiguous or unauthorized, the Receiving Party shall tell the Providing Party. If the notice indicates a restriction, the Receiving Party shall protect the Data under this Article unless otherwise directed in writing by the Providing Party.
8. The Data rights herein apply to the employees and Related Entities of Partner. Partner shall ensure that its employees and Related Entity employees know about and are bound by the obligations under this Article.
9. Disclaimer of Liability: NASA is not restricted in, or liable for, the use, disclosure, or reproduction of Data without a restrictive notice under paragraphs A.3., B. or H. of this Article or for Data Partner gives, or is required to give, the U.S. Government without restriction.
10. Partner may use the following or a similar restrictive notice under paragraphs A.3., B. and H. of this Article.

Proprietary Data Notice

The data herein include Proprietary Data and are restricted under the Data Rights provisions of Space Act Agreement [*provide applicable identifying information*].

Partner should also mark each page containing Proprietary Data with the following or a similar legend: “**Proprietary Data – Use And Disclose Only Under the Notice on the Title or Cover Page.**”

11. NASA obtains no rights in Partner and/or Partner's Related Entity's Data produced prior to the execution of this Agreement, except for Data produced under this Agreement as contemplated below.

B. Data First Produced by Partner Under this Agreement

1. If Data first produced by Partner or its Related Entities under this Agreement is provided to NASA, and the Data is Proprietary Data, and it includes a restrictive notice, NASA will use reasonable efforts to protect it. The Data maybe disclosed and used (under suitable protective conditions) only for the purposes of this Agreement.
2. Upon completion of this Agreement, NASA shall not assert rights in such Data or use such Data for any purpose.

C. Data First Produced by NASA Under this Agreement

If Partner requests that Data first produced by NASA or its Related Entities under this Agreement be protected, and NASA determines it would be Proprietary Data if obtained from Partner, NASA may, at the Agency's sole discretion, mark it with a restrictive notice and use reasonable efforts to protect it for five (5) years after its development. Should the Agency decide to mark any such data, during this restricted period the Data may be disclosed and used (under suitable protective conditions) for U.S. Government purposes only, and thereafter for any purpose. Partner must not disclose the Data without NASA's written approval during the restricted period. The restrictions placed on NASA are discretionary and do not apply to Data disclosing a solely-made NASA owned invention for which patent protection is being considered, as defined in Article 10.

D. Publication of Results

The National Aeronautics and Space Act (51 U.S.C. § 20112) requires NASA to provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof. As such, NASA may publish unclassified and non-Proprietary Data resulting from work performed under this Agreement. The Parties will coordinate publication of results allowing a reasonable time to review and approve the content.

E. Data Disclosing an Invention

If the Parties exchange Data disclosing an invention for which patent protection is being considered, and the furnishing Party identifies the Data as such when providing it to the Receiving Party, the Receiving Party shall withhold it from public disclosure for a reasonable time (two (2) years unless otherwise agreed or the Data is restricted for a longer period herein).

F. Copyright

Data exchanged with a copyright notice and no indication of restriction under paragraphs A.3., B, C, or H of this Article (*i.e.*, Data has no restrictive notice) may be reproduced, distributed, and used to prepare derivative works only for carrying out the Receiving Party's responsibilities under this Agreement.

G. Data Subject to Export Control

Whether or not marked, technical data subject to the export laws and regulations of the United States provided to Partner under this Agreement must not be given to foreign persons or transmitted outside the United States without proper U.S. Government authorization.

H. Handling of Background, Third Party Proprietary, and Controlled Government Data

1. NASA or Partner (as Disclosing Party) may provide the other Party or its Related Entities (as Receiving Party):
 - a. Proprietary Data developed at Disclosing Party's expense outside of this Agreement (referred to as Background Data);
 - b. Proprietary Data of third parties that Disclosing Party has agreed to protect or is required to protect under the Trade Secrets Act (18 U.S.C. § 1905) (referred to as Third Party Proprietary Data); and
 - c. U.S. Government Data, including software and related Data, Disclosing Party intends to control (referred to as Controlled Government Data).
2. All Background, Third Party Proprietary and Controlled Government Data provided or disclosed by Disclosing Party to Receiving Party shall be marked by Disclosing Party with a restrictive notice and protected by Receiving Party in accordance with this Article.
3. Disclosing Party provides the following Data to Receiving Party. The lists below may not be comprehensive, are subject to change, and do not supersede any restrictive notice on the Data.
 - a. Background Data:
 - ViviSat business case details and plans
 - Mission Extension Vehicle (MEV) specifications
 - Rendezvous and Proximity Operations baselined for MEV mission
 - b. Third Party Proprietary Data:
 - Robotic servicing and space logistics services customer information
 - c. Controlled Government Data:
 - None
 - d. NASA software and related Data will be provided to Partner under a separate Software Usage Agreement (SUA). Partner shall use and protect the related Data in accordance with this Article. Unless the SUA authorizes retention, or Partner enters into a license under 37 C.F.R. Part 404, the related Data shall be disposed of as NASA directs:
 - COPERNICUS TRAJECTORY DESIGN AND OPTIMIZATION SYSTEM V4; Case # MSC-25863-1 (to be confirmed)

4. For Data with a restrictive notice and Data identified in this Agreement, Receiving Party shall:
- a. Use, disclose, or reproduce the Data only as necessary under this Agreement;
 - b. Safeguard the Data from unauthorized use and disclosure;
 - c. Allow access to the Data only to its employees and any Related Entity requiring access under this Agreement;
 - d. Except as otherwise indicated in 4.c., preclude disclosure outside Receiving Party's organization;
 - e. Notify its employees with access about their obligations under this Article and ensure their compliance, and notify any Related Entity with access about their obligations under this Article;
 - f. Dispose of the Data as Disclosing Party directs; and
 - g. Not to obtain any rights in the Data beyond right to use Data in performance of this Agreement.

I. Oral and visual information

If Partner discloses Proprietary Data orally or visually, NASA will have no duty to restrict, or liability for disclosure or use, unless Partner:

1. Orally informs NASA before initial disclosure that the Data is Proprietary Data, and
2. Reduces the Data to tangible form with a restrictive notice as required by paragraphs A.3., B, and H of this Article, and gives it to NASA within ten (10) calendar days after disclosure.

ARTICLE 10. INTELLECTUAL PROPERTY RIGHTS - INVENTION AND PATENT RIGHTS

A. "Related Entity" as used in this Invention and Patent Rights Article means a contractor, subcontractor, grantee, or other entity having a legal relationship with NASA or Partner assigned, tasked, or contracted with to perform activities under this Agreement.

B. The invention and patent rights herein apply to employees and Related Entities of Partner. Partner shall ensure that its employees and Related Entity employees know about and are bound by the obligations under this Article.

C. NASA has determined that 51 U.S.C. § 20135(b) does not apply to this Agreement. Therefore, title to inventions made (conceived or first actually reduced to practice) under this Agreement remain with the respective inventing party(ies). No invention or patent rights are exchanged or granted under this Agreement. NASA and Partner will use reasonable efforts to report inventions made jointly by their employees (including employees of their Related Entities). The Parties will consult and agree on the responsibilities and actions to establish and maintain patent protection for joint invention, and on the terms and conditions of any license or other rights exchanged or granted between them.

ARTICLE 11. RELEASE OF GENERAL INFORMATION TO THE PUBLIC AND MEDIA

NASA or Partner may, consistent with Federal law and this Agreement, release general information regarding its own participation in this Agreement as desired.

ARTICLE 12. USE OF NASA NAME AND EMBLEMS

A. NASA Name and Initials

Partner shall not use "National Aeronautics and Space Administration" or "NASA" in a way that creates the impression that a product or service has the authorization, support, sponsorship, or endorsement of NASA, which does not, in fact, exist. Except for releases under the "Release of General Information to the Public and Media" Article, Partner must submit any proposed public use of the NASA name or initials (including press releases and all promotional and advertising use) to the NASA Associate Administrator for the Office of Communications or designee ("NASA Communications") for review and approval. Approval by NASA Office of Communications shall be based on applicable law and policy governing the use of the NASA name and initials.

B. NASA Emblems

Use of NASA emblems (i.e., NASA Seal, NASA Insignia, NASA logotype, NASA Program Identifiers, and the NASA Flag) is governed by 14 C.F.R. Part 1221. Partner must submit any proposed use of the emblems to NASA Communications for review and approval.

ARTICLE 13. DISCLAIMER OF WARRANTY

Goods, services, facilities, or equipment provided by the Parties to this Agreement are provided "as is." The Parties make no express or implied warranty as to the condition of any such goods, services, facilities, or equipment, or as to the condition of any research or information generated under this Agreement, or as to any products made or developed under or as a result of this Agreement including as a result of the use of information generated hereunder, or as to the merchantability or fitness for a particular purpose of such research, information, or resulting product, or that the goods, services, facilities or equipment provided will accomplish the intended results or are safe for any purpose including the intended purpose, or that any of the above will not interfere with privately-owned rights of others. No Parties to this Agreement shall be liable for special, consequential or incidental damages attributed to such equipment, facilities, technical information, or services provided under this Agreement or such research, information, or resulting products made or developed under or as a result of this Agreement.

ARTICLE 14. DISCLAIMER OF ENDORSEMENT

NASA does not endorse or sponsor any commercial product, service, or activity. NASA's participation in this Agreement or provision of goods, services, facilities or equipment under this Agreement does not constitute endorsement by NASA. Partner agrees that nothing in this Agreement will be construed to imply that NASA authorizes, supports, endorses, or sponsors any product or service of Partner resulting from activities conducted under this Agreement, regardless of the fact that such product or service may employ NASA-developed technology.

ARTICLE 15. COMPLIANCE WITH LAWS AND REGULATIONS

A. The Parties shall comply with all applicable laws and regulations including, but not limited to, safety; security; export control; environmental; and suspension and debarment laws and regulations. Access by a Partner to NASA facilities or property, or to a NASA Information Technology (IT) system or application, is contingent upon compliance with NASA security and safety policies and guidelines including, but not limited to, standards on badging, credentials, and facility and IT system/application access.

B. With respect to any export control requirements:

1. The Parties will comply with all U.S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 C.F.R. Parts 120 through 130, and the Export Administration Regulations (EAR), 15 C.F.R. Parts 730 through 799, in performing work under this Agreement or any Annex to this Agreement. In the absence of available license exemptions or exceptions, the Partner shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of hardware, technical data and software, or for the provision of technical assistance.

2. The Partner shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of work under this Agreement or any Annex under this Agreement, including instances where the work is to be performed on-site at NASA and where the foreign person will have access to export-controlled technical data or software.

3. The Partner will be responsible for all regulatory record-keeping requirements associated with the use of licenses and license exemptions or exceptions.

4. The Partner will be responsible for ensuring that the provisions of this Article apply to its Related Entities.

C. With respect to suspension and debarment requirements:

1. The Partner hereby certifies, to the best of its knowledge and belief, that it has complied, and shall comply, with 2 C.F.R. Part 180, Subpart C, as supplemented by 2 C.F.R. Part 1880, Subpart C.

2. The Partner shall include language and requirements equivalent to those set forth in subparagraph C.1., above, in any lower-tier covered transaction entered into under this Agreement.

ARTICLE 16. TERM OF AGREEMENT

This Agreement becomes effective upon the date of the last signature below (“Effective Date”) and shall remain in effect until the completion of all obligations of both Parties hereto, or March 31, 2017, whichever comes first.

ARTICLE 17. RIGHT TO TERMINATE

Either Party may unilaterally terminate this Agreement by providing thirty (30) calendar days written notice to the other Party.

ARTICLE 18. CONTINUING OBLIGATIONS

The rights and obligations of the Parties that, by their nature, would continue beyond the expiration or termination of this Agreement, e.g., "Liability and Risk of Loss" and "Intellectual Property Rights" related shall survive such expiration or termination of this Agreement.

ARTICLE 19. POINTS OF CONTACT

The following personnel are designated as the Points of Contact between the Parties in the performance of this Agreement.

NASA

Alan Lindenmoyer
Manager, Commercial Space Capabilities Office
alan.j.lindenmoyer@nasa.gov
Telephone: 281-244-7064
Cell: 281-630-4841
Fax: 281-483-5970
NASA Johnson Space Center
2101 NASA Parkway
Code QA
Houston, Texas 77058

ATK

David Kang
Director, Advanced Systems
[REDACTED]
Telephone: 301-902-4450
Cell: [REDACTED]
Fax: 301-902-4114
ATK
5050 Powder Mill Road
Beltsville, MD 20705

ARTICLE 20. DISPUTE RESOLUTION

Except as otherwise provided in the Article entitled "Priority of Use," the Article entitled "Intellectual Property Rights – Invention and Patent Rights" (for those activities governed by 37 C.F.R. Part 404), and those situations where a pre-existing statutory or regulatory system exists (e.g., under the Freedom of Information Act, 5 U.S.C. § 552), all disputes concerning questions of fact or law arising under this Agreement shall be referred by the claimant in writing to the appropriate person identified in this Agreement as the "Points of Contact." The persons identified as the "Points of Contact" for NASA and the Partner will consult and attempt to resolve all issues arising from the implementation of this Agreement. If they are unable to come to agreement on any issue, the dispute will be referred to the signatories to this Agreement, or their designees, for joint resolution. If the Parties remain unable to resolve the dispute, then the NASA signatory or that person's designee, as applicable, will issue a written decision that will be the final agency decision for the purpose of judicial review. Nothing in this Article limits or prevents either Party from pursuing any other right or remedy available by law upon the issuance of the final agency decision.

ARTICLE 21. MODIFICATIONS

Any modification to this Agreement shall be executed, in writing, and signed by an authorized representative of NASA and the Partner.

ARTICLE 22. ASSIGNMENT

Neither this Agreement nor any interest arising under it will be assigned by the Partner or NASA without the express written consent of the officials executing, or successors, or higher- level officials possessing original or delegated authority to execute this Agreement.

ARTICLE 23. APPLICABLE LAW

U.S. Federal law governs this Agreement for all purposes, including, but not limited to, determining the validity of the Agreement, the meaning of its provisions, and the rights, obligations and remedies of the Parties.

ARTICLE 24. INDEPENDENT RELATIONSHIP

This Agreement is not intended to constitute, create, give effect to or otherwise recognize a joint venture, partnership, or formal business organization, or agency agreement of any kind, and the rights and obligations of the Parties shall be only those expressly set forth herein.

ARTICLE 25. SIGNATORY AUTHORITY

The signatories to this Agreement covenant and warrant that they have authority to execute this Agreement. By signing below, the undersigned agrees to the above terms and conditions.

NATIONAL AERONAUTICS AND SPACE
ADMINISTRATION

ATK SPACE SYSTEMS INC.

BY: Philip R. McAlister

BY: Tom Wilson

Philip R. McAlister

Tom Wilson

Director, Commercial Spaceflight
Development Division

General Manager

DATE: 12/18/2014

DATE: 12/17/2014

Appendix 1 – Executive Summary

Capabilities planned by the company: ViviSat, a joint venture of ATK and U.S. Space, is pursuing the emerging industry in **space logistics** and **space transportation** and plans to provide cost effective service to both Government and commercial space customers.

ViviSat is the leading U.S.-based space logistics services company. Initially, we seek to change the nature of the satellite business by providing commercial on-orbit satellite services.

ATK has more than five years of direct planning, investment and preparation to build, launch, and profitably operate a satellite Mission Extension Vehicle (MEV) fleet.

ATK, as the ViviSat mission prime, has proven capability to design, develop, integrate, launch and operate complex satellite systems in developing the MEV and its operations. Collaboration with ATK provides NASA the benefits of an existing, experienced partner in promoting a U.S. commercial space industry upon which Government and commercial space industries can depend for future science, exploration, national security and commercial missions.

Purpose of the proposed partnership: With the ViviSat space logistics and hosted payload business case matured, ATK prepares to leverage NASA expertise for core technologies relevant to market expansions.

An ATK Space Act Agreement (SAA) under CCSC will support near-term development of space logistics services. Previously, to address **space transportation** services, ATK entered into SAA with NASA GRC for adapting MEVs with high power solar electric propulsion. The same propulsion system is currently baselined for the NASA Asteroid Retrieval Mission. ATK looks forward to working with NASA to develop commercially provided integrated space capabilities.

Relevance to NASA: ViviSat’s pricing model is **fixed price payment on delivery of service**. With current economic realities, the key goals expressed in NASA’s 2014 Strategic Plan and NASA’s Voyages report benefit through relegating routine and mature services and capability maintenance to commercial firms. With planned annual dual-MEV launches starting in early **2018**, these capabilities are available well within the five-year CCSC objective.

NASA’s 2014 Strategic Plan, Strategic Goal 1, Objective 1.1 and NASA’s Voyages report clearly identified transporting cargo beyond LEO and in-space propulsion. With integration of high power solar electric propulsion, the commercial MEV Fleet can be a part of NASA Strategic Plan evolving commercial “**access to space**” to providing commercial transport service for “**access through space**”. NASA benefits from commercial firm fixed price assurance to deliver cargo beyond low Earth orbit supporting NASA’s Strategic Plan to extend and sustain human activities across the solar system. Two MEVs will be launched in tandem on a yearly schedule starting in 2018. With this yearly cycle, new capabilities can be readily integrated to expand the commercial market space and meet the five-year CCSC objective.

Business and technical approach, including why NASA should have confidence in the company’s ability to complete the proposed capabilities: As the key confidence litmus test, ViviSat’s business and technical approach close with commercial customers. Three MEVs are already under signed term sheets with communication satellite owner/operators and two others are under negotiations. Currently, for financing, ViviSat received a preliminary project letter

from Ex-Im Bank and are having in-depth discussions with equity investors. Insurance broker has been selected as well as licensing steps taken.

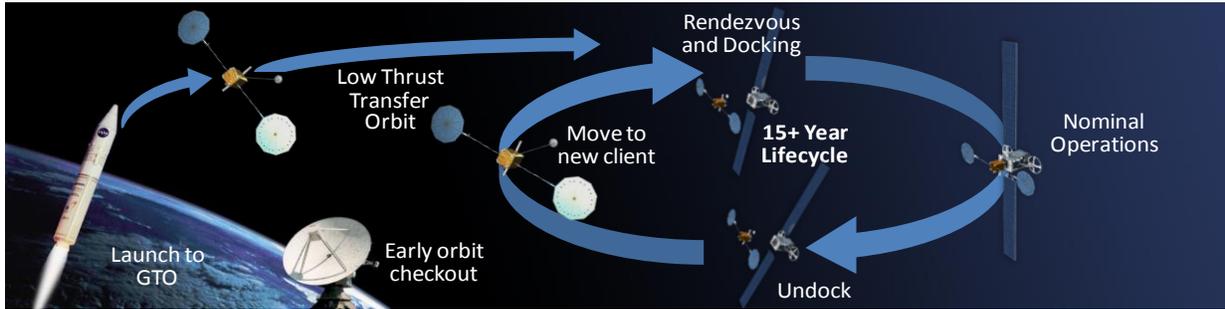


Figure Error! No text of specified style in document.-1: MEV Mission Overview

The initial target market for ViviSat’s MEVs are GEO communication satellites that are functional, yet approaching their end of life due to a lack of propellant and/or related propulsive/attitude control systems failures. The initial MEV mission is depicted in Figure I-1 begins with the launch of two MEVs in a stacked configuration into GTO. The baseline configuration is to stack two MEVs and launch them together on a single Falcon 9 launch vehicle. The purpose for selection of the Falcon 9 is to minimize cost. The selection of a U.S. vendor also simplifies the regulatory issues associated with a new mission and novel technology. As a commercial entity, ViviSat covers all launch and on-orbit insurance for the MEV missions. ViviSat proposes not just a single mission but a fleet of satellites dedicated to creation of a new U.S. industry in space logistics.