

National Aeronautics and
Space Administration



Flight Opportunities Program Update

Dr. LK Kubendran
Program Executive, NASA HQ

Ron Young
Program Manager, NASA AFRC

FAA Commercial Space Transportation Conference
February 5-6, 2014

www.nasa.gov/spacetech





Space Technology Mission Directorate (STMD) Programs



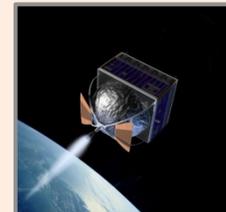
Transformative &
Crosscutting
Technology
Breakthroughs



**Game Changing
Development**



**Technology
Demonstration
Missions**

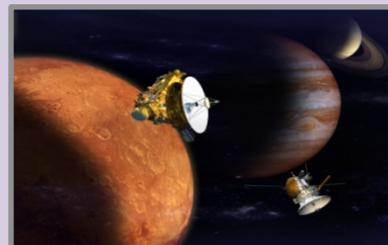


**Small Spacecraft
Technologies**

Pioneering
Concepts/
Developing
Innovation
Community



**Space Technology
Research Grant**



**NASA Innovative
Advanced Concepts**



**Center Innovation
Fund**

Creating Markets &
Growing Innovation
Economy



**Centennial
Challenges Prize**



**Small Business Innovation Research
& Small Business Technology
Transfer (SBIR/STTR)**



**Flight
Opportunities**

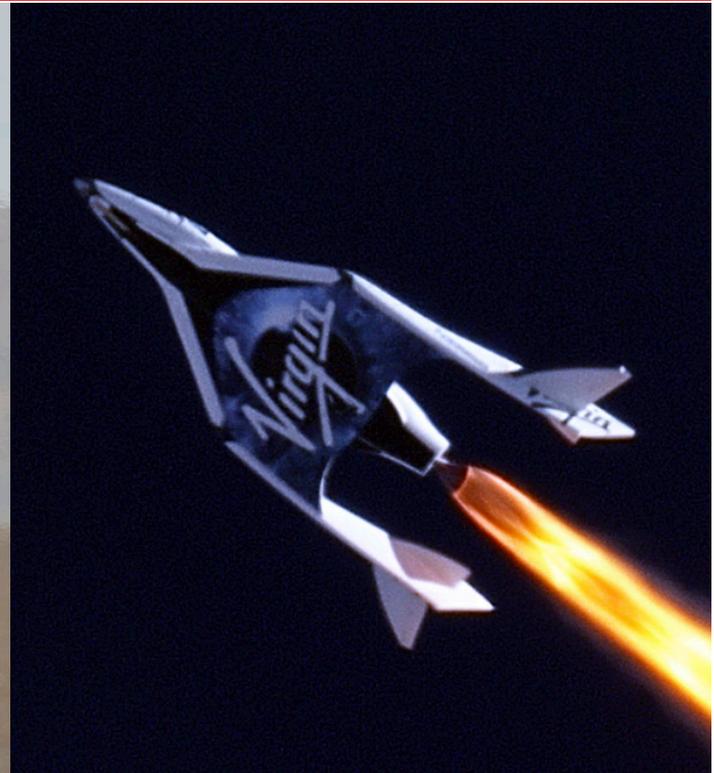
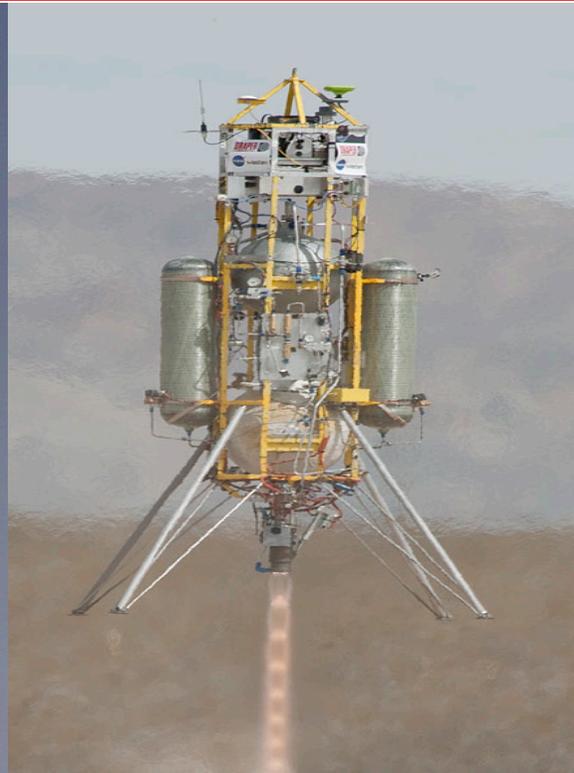


Approach To-Date



- Multiple award IDIQ commercial sRLV vendors (IDIQ1)
 - Technology payload flight services from qualified vendors
 - Governed by FAR Part 12 as commercial acquisitions
- Announcements of Flight Opportunities (AFOs)
 - Technology demonstration partnerships with PIs
 - No funds exchanged for flights
 - External entities: Non-reimbursable Space Act Agreements (SAAs)
 - OGA: interagency agreements
 - NASA centers: Task Agreements
- Game Changing Development-NRA (2012/2013)
 - Technology Development for Suborbital Flight Opportunities
 - Suborbital Flight Vehicle Capability Development

Program Flight Providers – Today





Program Highlights



- Flights (FY2013)
 - Five Parabolic Flight Campaigns (Zero-G Corp)
 - Four High-Altitude Balloon Flights (Near Space Corp)
 - Two Vertical Takeoff Vertical Landing Vehicle Campaigns (Masten)
 - One Suborbital Flight (UP Aerospace)
- Technologies Flown (FY2013)
 - 35 Payloads on Four Flight Platforms
- Technology Payloads in Queue as of Jan 1, 2014
 - 24 Parabolic [41 flown since program inception]
 - 19 Manifested; 5 Payloads Not Ready
 - 41 Suborbital [14 flown since program inception]
 - 17 Manifested; 24 Payloads Not Ready or awaiting launch vehicle
- Technology Proposals for AFO8 in Evaluation
 - Selection to be completed by end of March 2014



Program Strategy



- FOP Startup: sRLV anchor customer (FY2011-FY2013)
 - Matchmaking/handholding broker approach
 - Foster more technology payload demand
 - Improve sRLV vendor capabilities to accommodate technology payload needs
 - Effective but not scalable
- FOP Steady-State: one of many sRLV customers (FY2014+)
 - Open Market hands-off approach
 - Improve proposal selection quality
 - Improve technology return on investments
 - Balance payload flights with available program funding



Revised Approach for Contracting with Flight Vendors



- Firm-Fixed Price, Multiple Awards (IDIQ2)
- Five Year Performance Period
- New Flight Vendor Solicitation limited to Vendors with Operational Capability (i.e., Tier I Vendors)
- Must Provide Commercial Operations
- Purchase can be a payload slot or full manifest
- Provision to On-Ramp New Vendors with Qualified Vehicles annually or when Government has a requirement
- Provision to Solicit Technology Expansion in future
- Details at <http://go.usa.gov/ZZNW>



Opportunities for Vendors with Emerging Capabilities



- Tier II Vendors are on track to complete development of their vehicles in two years or less
- IDIQ2 Solicitation may not be able to select some IDIQ1 Vendors
- Investors in Tier II Companies Have Favorable View of NASA Relationships
- Program proposes following Approaches to Engage Tier II:
 - NASA SBIR Select
 - In formulation to offer funding
 - Space Tech REDDI NRA Appendix F1
 - offers Civil Service Expertise/Facilities



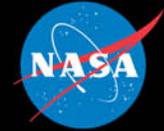
Space Tech REDDI NRA sRLV Technology Development



- Opportunity open to both Tier I & II vendors to enhance or develop sRLV technologies of mutual interest
- Must be able to complete development within two years or less
- Use co-operative agreement
 - Commercial sRLV vendors to cost-share 50%-50%
 - Provides STMD matching FTEs to work directly with vendors to mature space flight vehicle technologies
 - Allows vehicle developers to access NASA expertise and facilities
 - Provides NASA staff with valuable vehicle development experience
- Tier II vendors may become eligible to on-ramp to IDIQ-2



Expand Scope of AFO (In Formulation)



- Next AFO Revised to target use of funded-SAAs
 - U.S. Universities, Non-Profit Institutes, and Industry are eligible
 - Establish 'fair & reasonable' costs for Technology/Innovation demonstrated
 - PIs will work with desired FSP on proposal strategy, schedule and cost
 - Evaluation factors to include "cost-to-integration and fly payload"
 - Funds used to purchase individual payload-slots on domestic sRLV flights and reimburse limited PI travel expenses
 - SAA payments will be milestone-based (e.g., 30%/50%/20%)
- Requires HQ Legal concurrence
- No NASA-Sponsored Spaceflight Participant allowed (yet)
- Current Version of AFO open to NASA/OGA/International PIs



FY2014 and Beyond



- Program funding level is expected to be flat
- Program will apply established STMD criteria for payload selections
 - Cost of integration/flights will be a selection factor
 - Selection rate will be in line with other STMD Programs (10-25%)
- Program may fund PIs to purchase flights directly from vendors
- Program will continue to collaborate with other Programs/ Mission Directorates/Agencies
- Program will establish an approach to allowing spaceflight participants on commercial suborbital flights
- Program will continue to utilize and foster U.S. commercial sRLV capabilities