Alliance for Space Development

Objectives for FY2024

Assuring America's Leadership in Space

March 7-8, 2023

Meeting Agenda

Citizens' Space Agenda

Alliance for Space Development

- About Us - Who We Are
- Our Goals
- Primary Objectives
- Secondary Objectives
- Closing/Discussion

About Us

Citizens' Space Agenda

Alliance for Space Development

Who We Are

- Private U.S. citizens, advocating, at our own expense, for a bold and well-reasoned space agenda, worthy of the United States.

Nonprofit Supporting Organizations

- National Space Society
- Space Frontier Foundation
- Foundation for the Future
- Lifeboat Foundation
- The Mars Foundation
- The Mars Society
- The Moon Society
- Space Development Foundation
- Space Development Foundation
- Space Development Network
- Space Development Steering Committee
- Space For Humanity
- Space Renaissance USA
- Space Tourism Society
- Students for the Exploration and Development of Space

Our Goals

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- Reduce the cost of access to space
- Stimulate and accelerate the growth of space industries and commerce
- Make the development and settlement of space a clearly defined part of why we send humans into space

Primary Objectives

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- **Extend the "learning period"** limitation on FAA rule-making for human space launch for another eight years. ($0 FY24)

- Initiate a clean energy **technology demonstration of Space Solar Power** beamed to Earth from low Earth orbit, deployed within 3 years. ($75M FY24)

- Protect Earth from hazardous asteroids: **increase funding for the NEO Surveyor space telescope**, to recover from major funding cuts and carry out Congressional direction. ($210M FY24)

Secondary Objectives

Established Priorities for American Space Leadership

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- Continue to fully fund **Commercial LEO Destinations** (CLD); $224.3M FY23 Enacted
- Continue support for the **Commercial Crew Program.** $1,759.5M FY23
- Continue to fully fund both the **Human Landing System** (HLS) and the **Sustaining Lunar Development** contract. $1.486B FY23 Enacted
- Continue to fully fund development of the **lunar orbiting Gateway.** $799.2M FY23
- Fully fund **Commercial Lunar Payload Services** (CLPS) contracts. $486M FY23
- Fully fund the **Science Technology Mission Directorate** research agenda. $1,438M FY23 PBR; $1,200M Enacted

Extend the Learning Period

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- **Background**: Following the Ansari XPRIZE competition in 2004, Congress passed the Commercial Space Launch Amendments Act (CSLAA), **creating two foundational rules for commercial launch and human spaceflight: *the "learning period" and the "informed consent" liability regime***.

- The goal was to allow the emerging commercial spaceflight industry time to experiment without burdening them with regulations applied to "common carriers."

- The learning period has been extended twice, in large part, because no such flights had been conducted.

- **The Problem**: Only a limited number of flights have taken place using three different mission profiles (Blue Origin's suborbital rocket, Virgin Galactic's suborbital space plane, and SpaceX's orbital capsule). Flight experience is still very limited. ***The learning period expires on September 30, 2023, before sufficient "learning" has taken place***.

Extend the Learning Period

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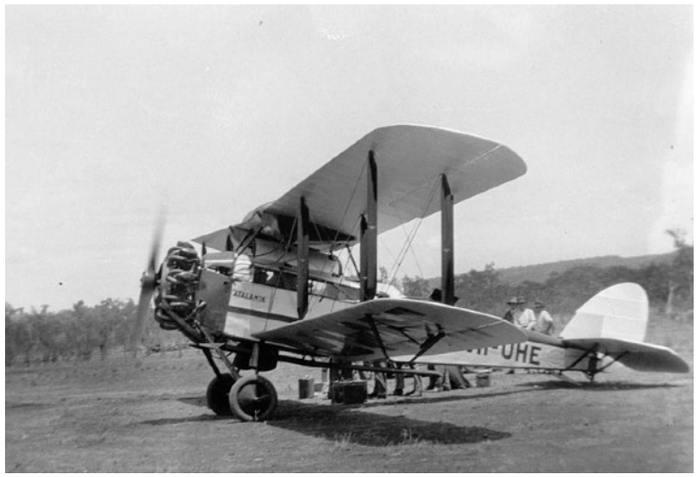
- **Current Construct**: FAA protects the safety of the uninvolved public, but allows US citizens the freedom to undertake the risk of flying on a launch vehicle. Industry is required to inform customers of the safety records.

- Congress authorized FAA to regulate vehicle safety for "spaceflight participants" based on actual flight data and limited authority to preemptively regulate new innovations without data for several years.

- **The "Learning Period"** (in 51 U.S. Code § 50905) **should be extended for eight years and the informed consent regime should be preserved.**



Early commercial air transportation
Source: Wikimedia

Early commercial human spaceflight
Source: WIkimedia

Will you support extending the "learning period" for eight years?

Space Solar Power

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- **Initiate a clean energy technology demonstration of Space Solar Power beamed to Earth from low Earth orbit, deployed within 3 years.** ($75M FY24)

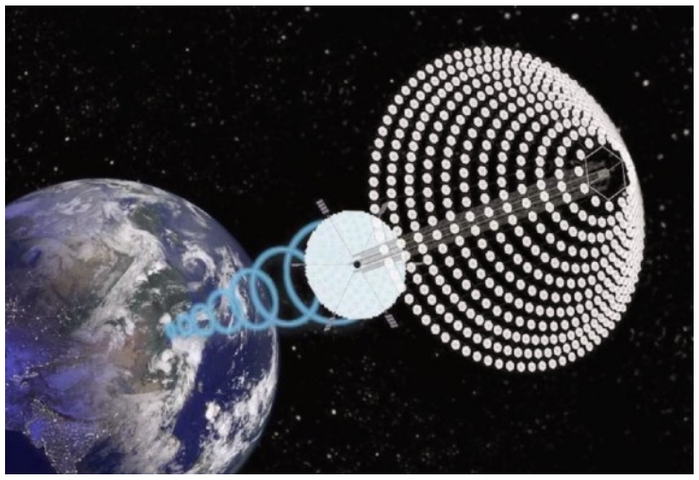
- The time is right! Alignment of factors: climate, technology readiness, potential challengers

- Initiative would position the US to

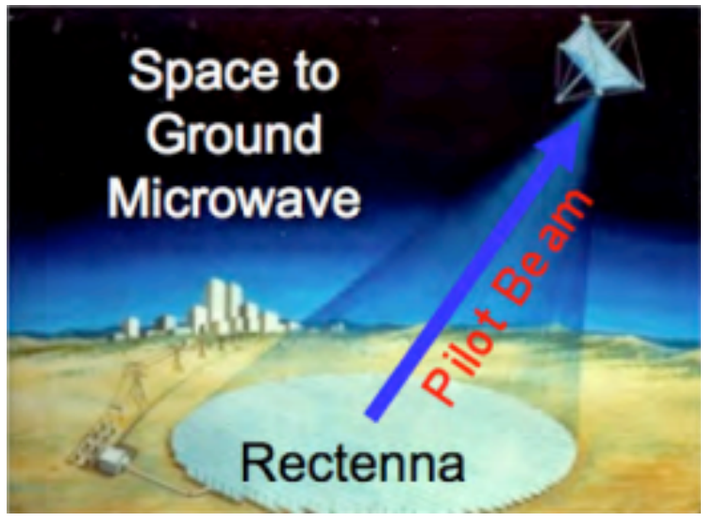
  - Lead the international community in space & "clean" technology

  - Establish rules of the road for non-governmental space activities

  - Jump start new commercial industries in space solar power and on-orbit assembly



Notional Solar Power Station orbiting Earth
Courtesy of John C. Mankins



A rectenna receives power beamed from orbiting station
Source : NASA/Wikimedia

Space Solar Power

State of Play

- US has no clear plan to pursue Space Solar Power
  - Various government efforts: DOD (Air Force and Navy Research Labs) explored solar cells, power-beaming, and incremental demos.
  - Caltech privately funded research initiative to explore and demonstrate technology.
  - The Aerospace Corporation called for public-private partnership in an October 2022 report:

    “U.S. government must decide whether the nation should attempt to lead the pursuit of this potential game-changer, collaborate with others, or pass up this opportunity…”

  - NASA report on Space Solar Power was expected late 2022. Release keeps slipping — nearly six months and counting.

Space Solar Power

Efforts Around the World

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- Nations around the world, both partners and competitors, are actively pursuing Space Solar Power

- Japan is working to demonstrate microwave wireless power transmission from LEO by 2024

- European Space Agency SOLARIS ($65M) program aims to mature tech to inform a 2025 decision on a large scale project

- United Kingdom's Space Energy Initiative is developing an in-space demonstration by 2030

- China plans a 10 kilowatt demo by 2028, a 10 megawatt geostationary power station by 2030, and a 2 gigawatt station in 2050

"China intends to become a global SPS leader" with a "dual use—military and civil" strategy. — The Aerospace Corporation

Space Solar Power

A US Public-Private Initiative

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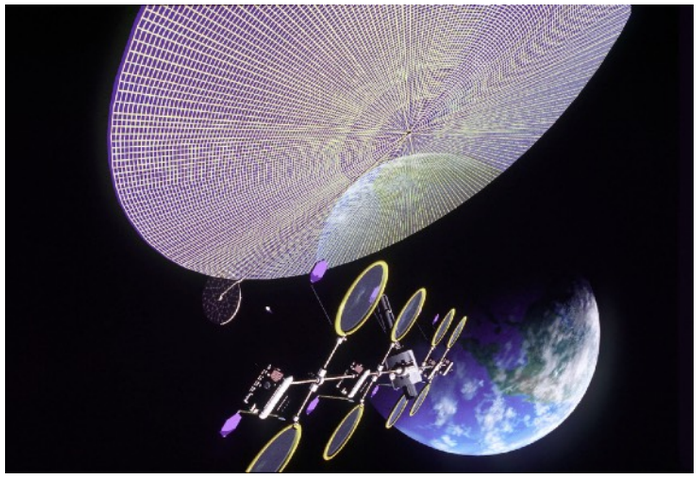
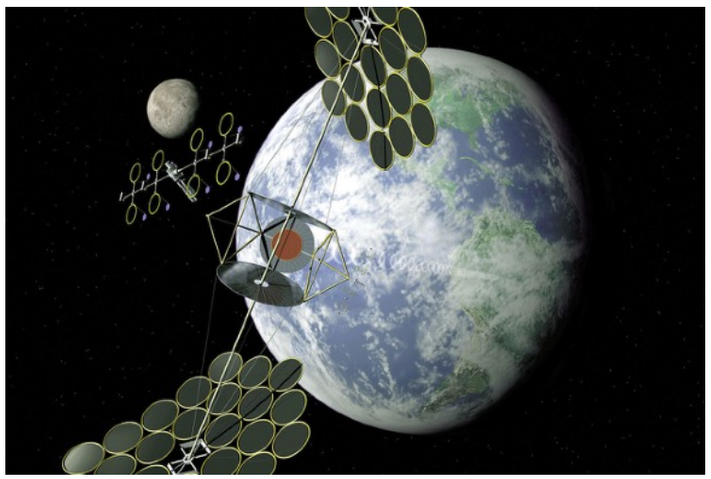
- Technology is maturing, launch costs dropping, the need and opportunity are increasing
- A public-private SSP initiative could
- jumpstart a new American energy industry
- advance on-orbit assembly capabilities,
- ushering in unprecedented economic benefits

Will you support an American Space Solar Power initiative?



Solar Power Station with LEO to GEO space tug
Source: NASA/Wikimedia



NASA Solar Power Station concept
Source : NASA/Wikimedia

NEO Surveyor

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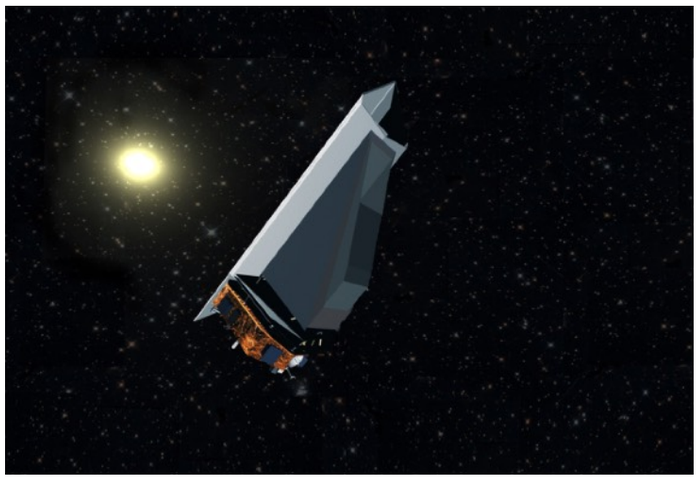
- Protect Earth from hazardous asteroids by increasing funding for the NEO Surveyor to $210M FY24, to recover from major funding cuts and carry out Congressional direction.

- NEO Surveyor is the only viable means to meet the congressionally directed near-Earth object (NEO) detection goal in as little as 10 years.

- The requested funding would enable the program to recover from major FY22 and FY23 funding reductions and launch as early as 2027.

Chelyabinsk Meteor, Feb 2013 *Credit: Alex Alishevskikh*



NEO Surveyor (rendering) *Created for NSS from NASA JPL image*

NEO Surveyor

Program History & Status

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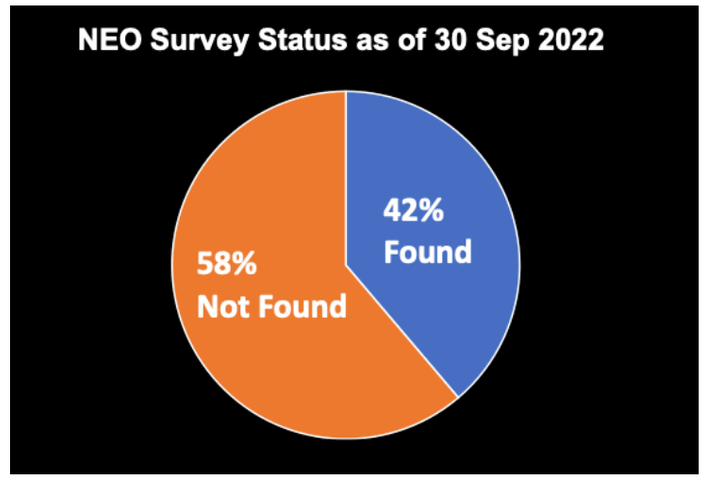
- In 2005, Congress directed NASA to locate 90% of near Earth asteroids larger than 140 meters across, within 15 years.4
- Nearly 25 years later, the Planetary Defense Coordination Office estimates it will still take at least 30 more years to meet this goal.5
- In FY22, $142M was enacted for NEO Surveyor, but NASA did not allow the program to execute most of this funding.
- In FY23: NEO Surveyor program plan called for $170M, but the President's Budget Request included only $39.9M (76% reduction) and delayed launch by two years to 2028.
- Two years of baffling and unexpected cuts significantly disrupted the program, leading to repurchases and rework, driving up costs.
- CHIPS & Science Act: directed NASA to develop NEO Surveyor "on a schedule to achieve a launch-readiness date not later than March 30, 2026, or the earliest practicable date…."
- FY23 Omnibus Appropriations Conference Report provided "not less than $90M for NEO Surveyor" and "notes concern about…the proposed launch slippage to 2028…"



George E. Brown, Jr. NEO Surveillance Act Progress
Source: NASA PDCO

Illustration: Sebastian Kaulitzki.
Wikimedia

Will you support $210M for NEO Surveyor?

Secondary Objectives, 1

Established Priorities for American Space Leadership

- Continue to fully fund **Commercial LEO Destinations** (CLD) program to ensure continued US access to, and presence in, low Earth orbit (LEO), while promoting economic development in LEO. ($224.3M FY23 Enacted)

- Continue support for the **Commercial Crew Program**, with at least two providers for human transport to LEO. ($1,759.5M FY23)

- Continue to fully fund both the **Human Landing System** (HLS), awarded to SpaceX, and the **Sustaining Lunar Development** contract, that supports a second lunar lander option. ($1.486B FY23 Enacted)

Secondary Objectives, 2

Established Priorities for American Space Leadership

- Continue to fully fund development of the **lunar orbiting Gateway**, a necessary staging point for Artemis and an important focus for commercial and international partners. ($799.2M FY23)

- Fully fund **Commercial Lunar Payload Services** (CLPS) contracts that leverage commercial providers to deliver science and technology to the lunar surface, while strengthening the space economy. ($486M FY23)

- Fully fund the **Science Technology Mission Directorate** research agenda, including in situ resource utilization projects, to close technology gaps critical to sustainable presence beyond LEO. ($1,438M FY23 PBR; $1,200M Enacted)

Closing & Discussion

Citizens' Space Agenda

- Thank you for taking the time to hear our concerns.
- Questions.
- Can you share any perspective on these asks?
- What space-related issues are important to your office?
- What information or other assistance can we provide you?
- Other Discussion.

Falcon 9 and Crew Dragon launches on Demo-2
Source:NASA/Joel Kowsky


March Storm
Legislative Blitz for a
Citizen's Space Agenda
ASD
Alliance for Space
Development
NSS
SPACE FRONTIER
FOUNDATION
March 6-8, 2023 - Washington, DC