The Alliance for Space Development
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Fund and Protect the Space Technology Mission Directorate (STMD) Budget

Fully fund the Space Technology Mission Directorate research agenda, including in situ resource utilization (ISRU) projects, to close technology gaps critical to an economically sustainable presence beyond low-Earth orbit.

Cost: $1.438B FY23 PBR ($1.2B Enacted)

Pending the release of the PBR, funding levels reflect FY23 funding information.

The Space Technology Mission Directorate's space technology research and development program has been regularly underfunded for two decades. This has delayed development and increased costs for critical technology necessary to enable and economically sustain a human presence in cislunar space and beyond.

- Congress has not funded STMD at the requested levels over many years. In FY23 enacted levels were 17% less than the PBR. This has significantly disrupted the R&D technology program plan, resulting in delays and increased near term costs. Ultimately this will have negative impacts on Artemis, through increased out-year costs and technology capability gaps.

- In addition to program reductions, unfunded space technology earmarks have exacerbated challenges. The unfunded earmarks further disrupt the STMD program, when NASA must pay for these earmarks at the expense of planned research projects.

- Without the maturation of key technologies, costs to access and operate on the lunar surface (and beyond) will be higher, making missions more difficult and riskier. This will put America and her Artemis partners at a competitive disadvantage, compared to nations that are actively seeking an economic advantage with their technology development activities.

- In situ resource utilization (ISRU)[1], the ability to process or use in-place lunar resources to 'live off the land,' is particularly in need of support. Much of this R&D is performed by many small businesses and universities, across the country. Without ISRU technology, NASA will build Artemis around the "supply-everything-from-Earth" approach, which results in the highest life cycle cost.

- Continuous human presence on the Moon, enabled by ISRU and a public-private approach (where NASA can lease privately operated lunar surface facilities similar to

[1] In situ resource utilization includes processing resources that exist in-place to derive hydrogen and oxygen for fuel and breathing, and lunar "soil" for landing platforms and building materials. Blue Origin recently announced a breakthrough in constructing silicon chips from simulated lunar soil, but there is much more to be done.

Commercial LEO Destinations), is expected to dramatically increase scientific discovery, similar to gains on ISS as compared to Shuttle single-sortie missions.

- Continuous human presence does not mean an ISS on the Moon. Rather it involves human activities over an extended period of time, with lower cost and lower risk. This “ability to stay” is necessary to avoid lunar missions that resemble Apollo’s short visits. And these capabilities will be necessary not just to eventually operate on Mars, but even to make the journey.

The space environment beyond LEO is harsh and challenging. A long-term human presence beyond LEO will require new technology, developed by NASA, the private sector, universities, and international partners. STMD’s R&D budget directly supports these technologies to enable sustainable operations in cislunar space and beyond. It is imperative that Congress support STMD’s R&D budget to ensure America’s competitiveness and strategic position in cislunar space.