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before the

Committee on Science, Space and Technology, Subcommittee on Space
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Chairman Babin, Ranking Member Lofgren, Chairman Haridopolos, Ranking Member Foushee and Members of the Subcommittee: thank you for holding this hearing and for the opportunity to provide an update on Astrobotic's efforts and plans to support American leadership on the Moon and beyond.

If nothing else, I would like to share four overarching thoughts with you today:

1. The Moon is a strategic and economic high ground that will determine space leadership for decades to come
2. The NASA Commercial Lunar Payload Services program – known as CLPS - is working,
3. The next iteration of CLPS can return even greater value to NASA and taxpayers, and
4. Power infrastructure is essential to sustained American robotic and crewed presence – and enduring leadership - on the Moon

**The Moon is a strategic and economic high ground that will determine space leadership for decades to come**

Mr. Chairman, the Moon is not just a destination—it is a strategic and economic high ground in an era where lunar access, lunar resource utilization, and the development of near-Earth infrastructure will define global influence for generations to come. We are at a moment of truth, where we must ask ourselves if America will continue to lead the coalition of 53-nations that have signed the Artemis Accords, secure access to critical lunar resources at key locations on the Moon, and prevent others from dictating the future of space beyond Earth orbit. Or if we will cede that ground to China, a competitor nation that does not share our values when it comes to free markets, freedom of movement, and democratic principles.

Thanks to this Committee's steadfast, bipartisan support since 2005, government and industry have been prioritizing the development of American lunar access through NASA's Commercial Lunar Payload Services initiative, or CLPS. As we find ourselves in a Great Powers competition unfolding at Earth's doorstep, I am heartened by the progress and promise of CLPS.

**The NASA CLPS Initiative is Working**

Over the last two years alone, the CLPS program has launched four spacecraft from three U.S. companies, none of which even existed two decades ago. There are now six more American lander missions on contract today, and all of this has been done for less than $1.4 billion.

The rapid progress we see today is owed to public-private partnerships between NASA and American industry. We have seen bipartisan leadership across three administrations institute, administer, and sustain the CLPS program. Numerous successive Congresses have provided direction and funding to make CLPS a reality. And multiple NASA mission directorates and centers have developed innovative procurement mechanisms that make CLPS landers a reality.

For instance, the NASA Johnson Space Center in Chairman Babin's district has expeditiously procured CLPS missions at a rate of roughly twice per year. The NASA Marshall Spaceflight Center in Alabama and NASA Glenn Research Center in Ohio have both provided their unique test fixtures to assist in preparing our landers for flight. Sensor technology spun out of the NASA Langley Research Center in Virginia is being integrated aboard CLPS landers. Landing algorithms from the NASA Jet Propulsion Laboratory in California have been used by CLPS vendors to assist in their own landing sensors. And of course, CLPS missions are all launched out of the Kennedy Space Center in Chairman Haridopolos' district.

The CLPS initiative is precisely why U.S. commercial companies are able to launch, land, and accomplish what has otherwise only been done by five nation states to date.

*The Peregrine Mission was an Important First Step*

In Astrobotic's case we launched the first U.S. lunar lander in more than 50-years in January 2024. Unfortunately our Peregrine lander mission encountered a valve anomaly that prevented an attempt to land on the Moon. Regardless, this mission was still highly valuable.

Peregrine's mission produced payload data for our customers that has since resulted in multiple peer-reviewed science papers. Many of the vehicle's subsystems were proven out on a 535,000-mile flight out to lunar distance and back. And the data we received from the anomalous propulsion system allowed us to pinpoint the root cause of the valve anomaly and ensure it will never happen again.

Last but not least, our team proved itself in the face of significant adversity. Not only did they heroically save the spacecraft with minutes to spare when the valve issue occurred, they successfully regained control of the vehicle and went on to fly it for 10-days until carrying out a precise and safe return back to Earth over the South Pacific. Peregrine

advanced our technology, tested our team's resolve, and prepared us to succeed on our next lander mission.

*Griffin Will be a Major Upgrade in American Lander Capacity*

Following Peregrine, we have taken the lessons learned and the irreplaceable experience of flying to cislunar space and infused it into our next lander, Griffin. When Griffin launches later this year on a SpaceX Falcon Heavy, it will be the largest lunar lander since Apollo 17, and five times larger than any previously launched CLPS lander. It will carry a 1000+ pound lunar rover from Astrolab, a California-based lunar mobility company, and signal its readiness to be an infrastructure workhorse for the nation. Griffin's mission will represent a major upgrade in American lander capacity that will be vital for building out lunar surface infrastructure, pursuing lunar resources, re-supplying our astronaut crews, and delivering ever more sophisticated science platforms for the nation.

**The next iteration of CLPS can return even greater value to NASA and taxpayers**

With the first iteration of the 10-year CLPS initiative nearing a close, now is an excellent time for Congress to consider what a CLPS 2.0 initiative should look like. CLPS is a great example of NASA leaning forward and cultivating exciting innovation already occurring in the U.S. space industrial base. The NASA Lunar CATALYST program was an excellent start to assist U.S. lunar companies like Astrobotic, and the follow-on CLPS program built on that progress and led to the breakout success of the companies before you today.

Now is the time for CLPS 2.0 to be stood up to make the space industrial base stronger, and return even greater capacity and capability to NASA and the market. CLPS 2.0 should be postured to begin taking advantage of mission block buys with existing incumbent CLPS vendors that are building full CLPS missions now. This will enable U.S. lander providers to buy in bulk from their U.S. supply chains. With block buys secured upfront, U.S. companies can save the CLPS program money with bulk orders from suppliers. We can also provide even greater stability for our workforces with steady continuity between missions.

Much like we have seen on NASA's Commercial Cargo and Commercial Crew programs and even in the Space Force's National Security Space Launch program, block buys of commercial missions are the optimal way to procure commercial mission services - providing best value to the government and taxpayer while providing for more stability and mission planning by commercial partners.

CLPS 2.0 can also provide predictability for payload builders, who will know exactly what kinds of "trains will be leaving the station" for the Moon on a pre-planned schedule. Such an approach will also position CLPS to be the primary workhorse program for NASA to get its payloads to the Moon and open the service to mission directorates beyond just the Science Mission Directorate. Under CLPS 2.0, NASA's Exploration System Development

Mission Directorate can begin to utilize these delivery capabilities to assist lunar crew missions that will serve as the proving ground for Mars. NASA's Space Technology Mission Directorate (STMD) can likewise use CLPS 2.0 missions to test robotic technologies and techniques needed for Mars.

**Power infrastructure is essential to sustained American robotic and crewed presence – and enduring leadership - on the Moon**

In addition to CLPS 2.0, we must also keep an eye to developments that will go a long way to determining which nations will establish a permanent presence on the Moon. CLPS deliveries are foundational, but reliable power on the lunar surface will be game changing. Astronaut habitats, robotic landers, resource utilization systems, long duration rovers, and commercial operators all require substantial, permanent, uninterrupted power.

The demand for power comes not just from operating spacecraft, but the need for heater power to survive the extreme thermal conditions of lunar night. To meet these demands, Astrobotic is developing a commercial lunar power grid service called LunaGrid, and we have already heavily invested in that system.

We are doing this because we believe America can become a literal source of light in the Moon's darkest regions, and provide critical infrastructure the world can plug into. By establishing a reliable lunar power grid at the south pole of the Moon, we can attract space agencies and businesses from around the globe, and make American power the backbone of lunar development. This investment will not just enable longer missions—it will transform the economics of lunar exploration, turning two-week surface missions into sustainable, years-long enterprises that will open the future of commercial activity on the Moon.

Astrobotic is well on its way in the development of many of the key systems for LunaGrid. For instance, we are a leading contractor under the NASA STMD Vertical Solar Array Technology (VSAT) program. The Griffin lander being built and launched this year is the ideal delivery vehicle for VSAT. Our small CubeRovers are the primary means of delivering power from the VSAT to a surface asset, and act as tethered, mobile power plugs using our wireless chargers. Both the CubeRover and the wireless charger were developed under NASA STMD Tipping Point contracts. And the lunar cables that will transmit power between the CubeRover and VSAT are being developed under a NASA Tipping Point called LunaGrid-Lite. LunaGrid-Lite will fly on Astrobotic's third mission, and will demonstrate the first power cable transmissions across the lunar surface.

All of these elements, from rovers to landers to cables to solar arrays, are being brought together in a power grid not only to provide lunar access to NASA and the commercial market, but to establish a sustained American presence on the Moon.

*A Solar-Based Solution for a Permanent American Presence*

Establishing this presence isn't just about infrastructure—it's also about timing. Speed is of the essence to ensure the U.S. is not locked out of the lunar south pole by competitor nations. Lunar missions over the last 15 years have indicated there are "Great Lakes" worth of lunar water ice that could be used for breathable air, rocket fuel, and drinking water. These resources are concentrated at the lunar south pole, a location where solar power can uniquely be used to provide near perpetual power generation; however, those sites in which both are abundant and near one another are limited. A race is on not just to reach these sites first, but to build an enduring presence that ensures freedom of access to these sites for all.

NASA STMD has rightly invested in the development of surface power systems for the Moon, through the VSAT program. This is a critical investment, as the first power stations on the Moon must be solar if America has any chance of establishing a permanent presence on the Moon ahead of China. Solar technology is inexpensive, has been proven in space, and has no major policy obstacles to its deployment on the Moon. U.S. leadership on the Moon will hinge on whether we develop and deploy the first solar power station on the Moon in the next four years.

Already two successive Congresses have outlined the intent to establish lunar power infrastructure, and we applaud the leadership demonstrated here for this crucial development. NASA has also rightly identified successful and sustainable operations on the Moon as a critical step to future Mars missions, and in fact, the NASA *Moon to Mars Objectives* have identified the Moon as a vital proving ground to demonstrate Earth independence for Mars.

Whether for crewed Artemis missions and operations, or sustained robotic and rover missions in between crewed landings, a permanent solar-based power infrastructure is the missing piece for ensuring U.S. leadership on the Moon. We urge you to prioritize this in your next NASA Authorization Act and annual appropriations bills.

**The U.S has everything it needs to lead on the Moon**

Collaboration between NASA and the U.S. commercial sector is the secret sauce behind why America will succeed on the Moon for decades to come. The CLPS program has been a resounding success by many measures, bringing new science to the surface; spurring growth within the space industrial base especially among small businesses; building new STEM workforces capable of achieving audacious technical goals; bringing the American flag back to the lunar surface for the first time in 50 years; serving as the tip of the spear for new business models at Earth's nearest neighbor; and providing a highly visible means for America's allies to work together beyond low Earth orbit.

In closing, I would like to express my sincere appreciation for the strong support this committee has provided to the CLPS program over the years. The thought leadership and policy support developed here has enabled our industry's success to date, and Astrobotic looks forward to continuing serving the nation to the Moon and beyond.