COMMITTEE ON
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Lamar Smith, Chairman

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Statement from Lamar Smith (R-Texas)

NASA's Next Four Telescopes

Chairman Smith: Space-based observations from telescopes like the Hubble Space Telescope have amazed us for decades and expanded our understanding of the Universe. We have also seen a rapid increase in the exciting discoveries of planets outside our own solar system.

We have confirmed over 3,500 exoplanets and another 4,000 unconfirmed planetary candidates since 1995. Scientists estimate that as many as 11 billion rocky, Earth-sized exoplanets could be orbiting in the habitable zones of Sun-like stars in our own Milky Way galaxy alone.

NASA's next four space telescopes will give us new ways to search for exoplanets and potential signs of life. Each one is designed to build on each other's success.

It's an exciting time for astrophysics. The Transiting Exoplanet Survey Satellite, or TESS, is being prepared for launch next year. The James Webb Space Telescope, or JWST, is only a couple of years away from launch. The Wide Field Infrared Survey Telescope, or W-FIRST, program is well underway. And we are now in the early stages of designing the next generation space telescope that will hopefully answer many more of our questions about the universe. In January 2016, NASA initiated the four Decadal Survey Mission Concept Studies for the next space telescope that would launch in the 2030s.

With the coming heavy lift capability of the Space Launch System (SLS), a future space telescope larger than James Webb Space Telescope could be possible. SLS could enable the launch of telescopes that could scan exoplanets for signatures that indicate the presence of continents, oceans, atmospheres, habitable conditions and perhaps even life itself.

The National Academy of Sciences is preparing to undertake their 2020 Astronomy and Astrophysics Decadal Survey. The survey will help inform the Academy about options for future missions.

As fascinating as this all sounds, the space program is hampered by delays. James Webb recently encountered additional problems during testing that will delay the mission to as late as June 2019. An independent review board for W-FIRST concluded

the project is "not executable" without additional funding or scaling back the mission. And TESS, while still on schedule and budget, experienced a focal shift within the optics of its four wide-angle telescopes during testing that may degrade the science it conducts.

The issues with JWST are not insignificant; however, NASA expects the existing JWST budget to be able to accommodate the change in launch date and that there will not be an impact on the planned science observations. The remaining work will focus on integrating and testing the instruments, telescope and spacecraft to prepare it for its new launch date in 2019.

More troubling is the report on W-FIRST. An independent outside committee established by NASA found that various changes made to W-FIRST since it was first proposed as the top-ranking flagship mission in the 2010 Astrophysics Decadal Survey created additional costs and technical difficulties.

Apparently NASA has not learned lessons from its past experiences. After an extensive re-planning effort due to excessive cost growth, NASA had to constrain JWST in 2012 to a congressionally mandated cost-cap of $8 billion. Now W-FIRST may be subjected to a similar limitation. We cannot allow unbudgeted cost to occur on W-FIRST the same way it did on JWST. The impact to other science missions, as well as other activities at NASA, would be too great. Much better program management and discipline are required to ensure this does not continue to occur.

Last month NASA instructed the W-FIRST program to modify the current design to reduce costs to an earlier target of $3.2 billion. I am hopeful that the program will find creative solutions to maintain the mission's science objectives. NASA must remain mindful that any potential cost increase of W-FIRST will put pressure not only on other astrophysics missions, but also on other agency priorities.

NASA should continue to explore options to reduce the costs of these large programs, such as leveraging program surpluses, early-stage cost-caps and firm fixed-price contracts which will benefit taxpayers.

Partnerships between the private and public sector in astronomy are well established and these ties need to be strengthened when it comes to space telescopes. Going forward, I hope that NASA, space companies and academia will work together to expand public-private partnerships.

We are on the cusp of something very significant for humanity. But we are still at the beginning. Many more amazing discoveries await us. Going forward, Congress needs to have the necessary confidence in NASA and its contractors to put us on the right path at a reasonable cost.

I look forward to our witness' testimony today. With representation from NASA, the National Academy of Sciences, the Association of Universities for Research in Astronomy, the Government Accountability Office and renowned leaders in the field, we have the opportunity to hear a number of valuable perspectives.

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