COMMITTEE ON
SCIENCE, SPACE, & TECHNOLOGY
Lamar Smith, Chairman

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Statement of Chairman Lamar Smith (R-Texas)
Planetary Flagship Missions: Mars Rover 2020 and Europa Clipper

Chairman Smith: Thank you, Chairman Babin.

The exploration of our solar system captures Americans' interests, inspires us to pursue extraordinary goals, and keeps us on the forefront of scientific achievement.

Planetary missions teach us about how our solar system works and provide clues about how it was formed. They discover the locations of minerals and potential water sources on asteroids, comets, moons, and planets that could be used on future human missions or, in the case of minerals, extracted for use here on Earth.

Planetary science also helps address a fundamental question of science: Is there life elsewhere in the universe? Within our own solar system, scientists have found strong evidence that other planetary systems could host life.

Europa, one of Jupiter's many moons, may have the necessary ingredients for life: water and energy. Its ocean lies beneath an icy surface and may be two times the volume of all Earth's oceans. Tidal forces drive active geological processes within Europa's ocean interior and provide energy. Scientists see similar activity in hydrothermal vents on Earth's ocean floor.

The *Europa Clipper* mission, a flagship mission recommended by the National Academy of Sciences, will be an important mission to address the scientific question of whether there is life elsewhere in the universe. It will advance our understanding of planetary science as it explores the characteristics of Europa's oceans, ice surface, and other geological activity. Congress directed NASA to work on a Europa lander to complement the *Europa Clipper*. NASA's Europa Lander Science Definition Team conducted a study on the topic in 2016. The study found that the mission could analyze the biological potential of Europa's ocean by directly examining both Europa's surface and sub-surface. This is a very exciting concept that warrants NASA's continued efforts.

Closer to Earth, *Mars Rover 2020* will also study the habitability of Mars. It builds upon the discoveries from the Mars Curiosity rover and the two Mars Exploration rovers, Spirit and Opportunity.

The mission not only seeks signs of habitable conditions in Mars' past, but also searches for signs of past microbial life itself.

It will also test new technology that could benefit future robotic and human exploration of Mars. One of its instruments, "MOXIE," will test a method for producing oxygen from the Martian atmosphere. Oxygen production on Mars will be critical for future human missions. I appreciate NASA's planetary science exploration efforts and the Trump administration's support of American leadership in space. Other than national security agencies, NASA received the most favorable budget request from the trump administration. As a result, we can look forward to NASA undertaking a bold and ambitious agenda.

I thank our witnesses and look forward to their testimony.

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