

**SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION:
QUESTIONS FOR THE RECORD**

**FROM THE NOMINATIONS HEARING
ON MAY 20, 2021**

**Written Questions Submitted to Pamela Melroy, Nominee to be Deputy NASA
Administrator**

Submitted by Senator Roger Wicker, Ranking Member
Artemis Continuity and Competition

Question 1: Artemis Program The missions and goals NASA undertakes are ambitious, complex, and span multiple presidential administrations and congresses. Consistent political leadership, adequate funding, and innovative partnerships remain vital to accomplishing these goals. I was glad to see President Biden's support for the Artemis program earlier this year.

- *As Deputy Administrator, how do you plan to keep NASA moving quickly and safely toward the first Artemis lunar landing? Do you support the current architecture plans for the Artemis program, which include the Space Launch System rocket and the future Exploration Upper Stage?*
 - i. *Follow up: Do you believe that having multiple providers for commercial space transportation programs at NASA enhances safety and competition?*

Response:

I support returning U.S. astronauts to the Moon as quickly and as safely as possible. If confirmed, I will work closely with the Administrator, NASA leadership, industry, and the Congress to ensure the Artemis program has the resources needed for the first crewed landing and a sustainable lunar program. NASA needs to work closely with its industry partners to maintain insight into the development schedule of flight hardware.

Yes, I support the Artemis architecture, including SLS, the planned SLS Block 1B, Orion, Gateway, and the Human Landing System. These components are the backbone of our Moon-to-Mars architecture, and many of them are in an advanced state of development. The Artemis lunar lander system relies on SLS and Orion to launch and transport crew to lunar orbit. The Exploration Upper Stage (EUS) is scheduled to be available for the fourth Artemis mission, and will provide tremendous capability for the program.

If resources are available, multiple options for commercial transportation services can benefit NASA by reducing the risk for schedule delays. Developing new space hardware is always a challenge to both schedule and cost. I believe competition for these programs is important and look forward to working with the administration and Congress to ensure commercial programs are adequately resourced.

Sustaining NASA's Infrastructure

Question 2: NASA's Infrastructure In 2020, Hurricane Zeta struck the Gulf Coast and caused significant damage to NASA infrastructure at Stennis Space Center and the Michoud Assembly Facility. According to NASA, these repairs will cost just over \$174 million. These facilities represent irreplaceable national assets and the backbone of NASA's spacecraft manufacturing and test capabilities.

- *Will you work with Administrator Nelson to ensure that these facilities are repaired?*

Response:

Yes, I will work with Administrator Nelson and Congress to address NASA's massive infrastructure needs, including damage at Stennis Space Center and the Michoud Assembly Facility caused by Hurricane Zeta. Over 80 percent of NASA 5,000 buildings and structures are beyond their constructed design life. Maintenance and facility issues directly impact NASA's missions and employee safety, which is unacceptable.

China Competition & New Space Race

Question 3: China Competition According to the 2019 Annual Report published by the U.S.-China Economic and Security Review Commission, China's ambitions are, "to establish a leading position in the economic and military use" of the space domain. To further its goal, China has exploited U.S. export control laws and partnerships with U.S. universities to gain access to critical space technologies. Even more troubling, the Report identifies China as responsible for cyberattacks targeting NASA, NOAA, and U.S. contractor systems.

- *Given this pattern of behavior, do you agree that partnering with the People's Republic of China in space would reward egregious acts and prove detrimental to the long-term stability and peaceful use of space?*

Response:

China has exhibited troubling behavior in space and on Earth. NASA will continue to follow U.S. law ("the Wolf amendment"), which says that the agency will not collaborate with China unless NASA, in consultation with the FBI, certifies that the collaboration does not risk transferring technology or data with national or economic security implications. There are some areas where it may make sense to talk to China – for instance sharing space situational awareness data to avoid collisions in Earth (or Mars) orbit. However, any such contact should be carefully considered to ensure it is in the best interest of the United States. The United States must work with its partners to continue to establish responsible norms of behavior in space, and call China out when they are violated.

Expanding Opportunities for Suborbital Spaceflight and STEM

Question 4: STEM As you know, one of the most powerful tools for building America's future STEM workforce is the broad portfolio of STEM education and engagement activities that

NASA supports. We have had conversations in this committee recently about ensuring that U.S. science investment is spread evenly across educational and research institutions in more states. Similarly, NASA's STEM efforts should strive to spread opportunities across the nation. Programs such as the flight opportunities program and suborbital crew program further this goal by making space more accessible for education and research.

- *Do you support programs such as Flight Opportunities and Suborbital Crew to expand spaceflight access?*

Response:

Yes, I believe NASA should look at ways to increase research and flight opportunities for principal investigators, particularly early career researchers. The flight opportunities program has benefited the research community by giving them more spaceflight opportunities, and it has the added benefit of supporting the growing suborbital spaceflight industry. Suborbital space missions provide the advantage of low-cost risk reduction prior to transitioning technologies to orbital missions. If confirmed, I look forward to being fully briefed on this program and others that involve suborbital spaceflight to ensure these programs are properly resourced and provide value to the taxpayer.

Submitted by Senator Rick Scott

Question 1: The 2021 Office of the Director of National Intelligence’s Annual Threat Assessment of the U.S. intelligence Agency stated, “Beijing is working to match or exceed U.S. capabilities in space to gain the military, economic, and prestige benefits that Washington has accrued from space leadership.”

- In your view, what is the greatest threat Communist China poses to the United States’ dominance in space?
- How can NASA ensure the protection of U.S. space exploration technology and research?

Response:

China and others are seeking to challenge U.S. space superiority. China has increasingly credible, well-resourced plans for activity in space - on the Moon and in low Earth orbit. I am most concerned about China’s disregard for norms of behavior in space that threaten the long-term sustainability and usability of space for all actors. The recent uncontrolled re-entry of the Long March 5B rocket is a prime example of this.

With regards to China, NASA will continue to follow U.S. law (“the Wolf amendment”), which says that the agency will not collaborate with China unless NASA, in consultation with the FBI, certifies that the collaboration does not risk transferring technology or data with national or economic security implications. Additionally, the U.S. government as a whole, not just NASA, needs to raise awareness at the highest level with industry and universities on the need for vigilance and rigor in security systems and practices within their institutions.

Question 2: What role do you believe the private sector plays in the development and advancement of space exploration?

Response:

I am so proud of how far the commercial space industry has come, and I believe they play an important role in NASA’s future. In human exploration -- but also in new areas like Earth science -- where NASA can leverage commercial capabilities to improve our understanding of the changing planet. NASA has long partnered with industry to achieve its lofty goals, and I am looking forward to all that we will continue to achieve together.

Question 3: Under the Obama/Biden Administration, the space program faced massive budget cuts, and we’ve since worked to make critical enhancements and investments to create thousands of jobs and improve infrastructure on Florida’s Space Coast.

- Can you discuss how you plan to protect the space program from similar cuts and how you will keep NASA’s programs and missions on schedule and within budget?

Response:

If confirmed, working with the administration and the Congress to ensure NASA has resources needed for all of its missions will be a top priority. Part of this is better communicating to the public how NASA benefits life on Earth.

An important part of public trust in NASA is improving cost estimates and cost and schedule growth. Designing and building new space systems is always hard. That said, NASA needs to improve cost growth on development programs, or we will never get off Earth. If confirmed, I am committed to improving cost growth and look forward to keeping the Congress informed of these efforts.