

NASA Advisory Council Recommendation

Transitioning Lunar Activities

2022-02-01

Name of Committee: Human Exploration and Operations Committee

Chair of Committee: Mr. Wayne Hale

Date of Council Public Deliberation: August 10, 2022

Short Title of Recommendation: Transitioning Lunar Activities

Recommendation:

NASA should begin to study how to transition sustaining lunar activities to other entities following successful Artemis missions establishing long duration lunar capabilities.

Major Reasons for the Recommendation:

NASA has started to study how to build on the sustained lunar activities which will be the result of the Artemis missions and use the knowledge and systems to advance toward human Mars missions. This plan, although at a high level, is sound. However, the difficulty for NASA will be in managing resources to transition from lunar to Martian activities. Currently there is no plan that the NAC is aware of that allows NASA to disengage from lunar activities while not causing them to cease. The transition of limited resources toward a Mars campaign will probably tax NASA in the decades following the establishment of sustained lunar operations. It is important that sustained lunar operations continue for commercial and scientific reasons, but NASA may not be able to lead them for the long term. NASA must begin to study now on how to transition those activities to other organizations, be they governmental or commercial.

Consequences of No Action on the Recommendation:

Without proper planning, when NASA turns its attention from the sustained lunar activities toward a human to Mars campaign, either the lunar activities will cease which is undesirable, or the Mars campaign will lack resources to be effective.

NASA Response:

NASA concurs that without proper planning, the transition to Mars could impact the sustained lunar campaign or the Mars campaign will lack sufficient resources. NASA has already begun studying how to transition sustaining lunar activities to other entities and recognizes the cost constraints and challenges related to supporting both sustained lunar and Mars missions simultaneously. For additional context, please see NASA's response to NAC Recommendation "2022-02-03: Plan for Lunar Sustainability." There are many definitions of "sustainability," however, in this response, we are interpreting sustained to mean continued access to the lunar surface.

Enclosure

Scientific discovery and technology advancement will continue to be key drivers for NASA's planned lunar infrastructure, and international space agencies around the world have similar drivers that compel them to invest in Artemis. Like NASA, these space agencies rely primarily on their national industrial bases to innovate new capabilities. The success of NASA's commercial crew and cargo programs in low-Earth orbit (LEO) have bolstered a private LEO economy, and NASA is continuing to work with industry partners to understand the evolution of a lunar economy. To state the obvious, the private sector must have a reliable business case to legitimately invest in the lunar marketplace. Taking continued access as a core tenet of lunar sustainability, NASA is working alongside U.S. industry to develop service-based capabilities with the intent that those services can one day be marketed to non-governmental clients. We are doing this with the Commercial Lunar Payload Services initiative, Gateway Logistics Services, Human Landing Systems, and potentially mobility and utility systems on the lunar surface.