

NASA's Initial and Sustained Artemis Human Landing Systems

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On March 26, 2019, in keeping with President Trump's Space Policy Directive-1, Vice President Pence charged NASA with landing the first woman and the next man on the South Pole of the Moon by 2024, followed by a sustained presence on and around the Moon by 2028. NASA's Human Landing System (HLS) Program is responsible for the final mode of transportation in deep space that will carry humans to and from the surface of the Moon, to be designed and developed by American companies for NASA's Artemis lunar exploration program. This paper examines the approach for Artemis human landing systems for both the initial missions and future sustained missions. While achieving the 2024 goal requires a focus on speed and the use of mature technologies, planning toward sustained operations to and from the lunar surface requires a focus on reliability and reusability. The two approaches, however, are not mutually exclusive, as demonstrated by the HLS prime contractors' integrated lander system proposals.

On April 30, 2020, NASA announced that Blue Origin of Kent, Washington, Dynetics (a Leidos company) of Huntsville, Alabama, and SpaceX of Hawthorne, California, were the awardees for NASA's Human Landing System contracts under Appendix H of the NextSTEP-2 Broad Agency Announcement. The companies began work in a 10-month base period during which NASA teams worked with the companies to streamline the review of required products and to share the agency's expertise in human spaceflight systems development. Following the base period, NASA will determine which company or companies will develop the human landers for the initial missions, including the 2024 landing, and which companies will develop landers for future sustained missions toward the end of the decade.

Suggested session: 2.03 System and Technologies for Landing on Planets, the Moon, Earth and Small Bodies