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ENABLING ARTEMIS: DEVELOPING THE SYSTEMS FOR HUMAN EXPLORATION OF THE LUNAR SOUTH POLE

Abstract

The purpose of Artemis is to return to the Moon, facilitate long-term human presence on the lunar surface, and to prepare for future human excursions deeper into the solar system starting with Mars. To establish a foothold on the Moon, missions will initially focus on establishing exploration capabilities at the lunar South Pole. A location rich in light and water resources, the South Pole is an ideal location for developing reusable systems, including mobile platforms and fixed infrastructure. NASA is taking an innovative approach to acquire these systems through service contracts to set the stage for economic growth and continuous, sustainable exploration. The first few missions will focus on the transportation and human systems aspects of the mission. Later missions will expand both commercial and international contributions so that each mission will increase in exploration range and duration. In the near term, contributions will be designed to expand capabilities focused at the lunar South Pole, overcoming technological challenges along the way. NASA will then have set the stage to go beyond, both to other parts of the Moon and on to Mars. This paper will provide an overview of the lunar surface systems and capabilities that NASA and its partners plan to deploy starting with Artemis III and will cover the strategy through which they are being planned and developed.