



NASA's Exploration Systems Architecture Study



Final Report

Preface

The National Aeronautics and Space Administration's (NASA's) Exploration Systems Architecture Study (ESAS) Final Report documents the analyses and findings of the 90-day Agencywide study. Work on this study began in May 2005 and was completed in July 2005. The purpose of the study was to:

- Assess the top-level Crew Exploration Vehicle (CEV) requirements and plans that will enable the CEV to provide crew transport to the International Space Station (ISS) and will accelerate the development of the CEV and crew launch system to reduce the gap between Shuttle retirement and CEV Initial Operational Capability (IOC);
- Define the top-level requirements and configurations for crew and cargo launch systems to support the lunar and Mars exploration programs;
- Develop a reference exploration architecture concept to support sustained human and robotic lunar exploration operations; and
- Identify key technologies required to enable and significantly enhance these reference exploration systems and a reprioritization of near-term and far-term technology investments.

The ESAS Final Report presents analysis and recommendations concerning technologies and potential approaches related to NASA's implementation of the Vision for Space Exploration. Project and contract requirements will likely be derived, in part, from the ESAS analysis and recommendations. However, the analysis and recommendations contained herein do not represent a set of project or contract requirements and are not binding on the U.S. Government unless and until they are formally and expressly adopted as such.

Details of any recommendations offered by the ESAS Final Report will be translated into implementation requirements. Moreover, the report represents the assessments and projections of the report's authors at the time it was prepared. It is anticipated that the concepts in this report will be analyzed further and refined. By the time some of the activities addressed in this report are implemented, certain assumptions on which the report's conclusions are based will likely evolve based on this new analysis. Accordingly, NASA, and any entity under contract with NASA, should not use the information in this report as final project direction.

The ESAS Final Report is separated into two segments. The first segment, which is the main body of the report, includes the Executive Summary. This segment is intended for public distribution.

The second segment is a collection of appendices. Access to the appendices is restricted due to the sensitive nature of the data they contain.

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