

An essential requirement of developing the launch vehicle system in 2013

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Abstract

The next generation launch technology requires developing and maturing innovative technologies based on overall propulsion, structure, vehicle systems and ground and flight operation. NASA plans to use existing elements for the boosters, crew, capsule and engines but the cryogenic stages are further element that requires significantly more design and development. Long term human space exploration depends on the development of a sustainable heavy lift launch vehicle (HLV). It must balance the technical and programmatic factors such as reliability, performance, cost, geographical configuration, logistic and assembly as well as in space issues such as mass and maintaining requirements for lunar and Mars mission and rendezvous and docking capability. In this paper examine the problem of designing sustainable heavy lift architecture in three ways. First recent advanced system architecture synthesized apply to HLV more precisely, as are the counter balancing the dynamics of adaptive and architecture lock in. Subsequent cases are studied to understand the evolution of system architecture is leading to the development of the last heavy lift vehicle. Finally, consider the vehicle capacity, aerodynamic effects and trajectory planning with fuel consumption in space requirement.