



## ***We Choose to Explore Space***

In 2010, Congress and the Administration reached a compromise on U.S. civil space policy that includes the following elements: (1) funding for commercial cargo and crew services, (2) continued development of a heavy lift launch vehicle and multi-purpose crew vehicle for deep space exploration, and (3) a scaled back technology development program. Unfortunately, the compromise did not include a true strategic plan for reaching Mars or any other destinations. While the President has made general statements about a mission to an asteroid around 2025 and a mission to Mars in the 2030s, such long-term proposals by themselves will not provide the necessary impetus today in the public and private sectors. The sad reality is that humans last set foot on the Moon 40 years ago, and Mars has been "20 years away" for almost 50 years.



Indeed, it was exactly 50 years ago today, that is, on September 12, 1962, that President John F. Kennedy, in his now famous speech at Rice University, issued a challenge to our nation's people, to American ingenuity, and to our technological prowess in space. With that speech, America chose to go to the Moon. Although President Kennedy's September 12, 1962 call to action was made in another era, and times have certainly changed since then, the necessity for America to lead the world in technology, and in space, of which President Kennedy spoke so eloquently 50 years ago today, still applies in 2012. In today's modern world, however, space is no longer just the next frontier that stands before us, if we chose to go. In the modern world, space is no longer optional; rather, it is an imperative. The United States needs a new call for action, one for the 21st Century.

The United States is today being challenged in space by many other nations - economically, technologically, and strategically - and in order to maintain our leadership position, NASA must be given a specific set of bold and exciting goals, matched with adequate resources. In addition, the necessary launch and in-space infrastructure to reach those goals within a reasonable timeframe must also be established. In order to achieve the necessary congressional and public support, we recommend that the U.S. space program be given the following definition and direction:

**Space Flight Capabilities:** It is critical that the next generation of launch vehicles be developed and/or human-rated at the earliest possible date. In the first instance, American access to LEO must be restored. In addition, production must also begin on launch vehicles that have sufficient lifting capacity that will enable NASA to mount, along with the necessary in-space infrastructure and transport vehicles, crewed missions beyond LEO. In addition, policies must be established that will result in dramatically lower production, launch, and operating costs. The missions that these capabilities will be slated to accomplish must be identified, and sufficient funding must be provided to achieve those missions. The designs should be mission-enabling and mission-enhancing, while at the same time focused on efficiency, affordability, safety, reliability, and sustainability.

**Private Sector:** The United States now has to rely on and pay for the Russian Soyuz for crew access to the International Space Station (the "ISS"). Instead of sending millions of dollars overseas to launch American astronauts into space, the commercial launch industry must be given full support in its efforts to restore independent American crew access to the ISS. Commercial cargo/crew access to LEO would not only provide for full utilization of the ISS, but it will likely lead to significant reductions in launch costs. With the commercial launch industry providing this service, NASA would then be able to focus its resources on exploration beyond LEO. NASA also should be directed to offer a wider range of prizes for space-related accomplishments by the private sector.

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**Timelines and Goals:** We believe that the United States should send humans to at least one intermediate destination **beyond low Earth orbit, such as an asteroid or the Moon, within the next 10 years, and that we should land humans on Mars by no later than 2030.** By doing so, the United States will continue to maintain its technological lead in space, rather than abrogating that role to other countries that today have active human spaceflight programs and that seek to supplant the U.S. as the world's premier space-faring nation.

**Maintain a Robust Program of Robotic Missions to Mars:** The United States has developed a remarkable robotic Mars program that is the envy of the world. The recent successful landing of the Curiosity rover promises to revolutionize our understanding of Mars. Unfortunately, funding for these programs is at risk. Earlier this year, NASA's budget for Mars missions beyond 2013 was dramatically reduced. This decision needs to be reversed. Although NASA recently did announce the selection of the modest 2016 InSight Mars Lander as part of the separate Discovery Program, the United States needs to ensure that NASA is able to continue an ambitious Mars science program throughout the rest of the decade, culminating with a **Mars Sample Return** mission.

**Advanced Technology, New Applications to Improve Life on Earth, and a Sustained Human Presence in Space:** President Kennedy correctly acknowledged that going into space is hard. Going into space requires research and development of innovative and enabling technologies that will not only provide the means to explore and develop space, but it will also lead to the creation of new industries, markets, and jobs as well as to numerous and groundbreaking applications that will improve life on Earth. In order to accomplish our goals in space, NASA must be allowed to define and prioritize the most promising technology concepts to advance space exploration and development, such as **advanced propulsion, in-space refueling, energy production, and In Situ Resource Utilization (the utilization of indigenous resources on the Moon, asteroids, or Mars).** In addition, space debris, planetary defense, and a legal regime are among the issues that must be addressed now that many nations are venturing into space along with us.

**Sustainability:** Our future path in space, if it is to succeed, requires a sustained, generational commitment to NASA's long-term mission, and certainly one that transcends partisan politics and election cycles. It also requires incentives to increase private sector and international partnerships. The space advocacy community acknowledges the financial constraints under which the U.S. government will be operating over the next few years and believes that tax dollars should be spent wisely. We look forward to continuing to work with Congress and the Administration to guarantee that the United States remains the leader in space exploration and development. As we lead the way into the solar system, new American growth industries will be spawned, **our nation's youth will be inspired to pursue careers in math, science, and engineering, and our country's economy will be re-invigorated.** The United States must not allow itself to be left behind.

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