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Moon colony may not be mere lunacy

A Permanent Lunar Base Can Be Set Up By Adapting Tech Used In Building ISS

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Could the United States establish a moon colony and develop a new propulsion system for going to Mars? All within eight years of a Newt Gingrich presidency, as Gingrich promised this week?

The answers seem to be technologically yes, economically iffy and politically very difficult.

The smallest hurdle is technology. After all, sending astronauts back to the moon by 2020 and setting up a permanent home there was the goal of the last Republican president, George W Bush, and Nasa had embarked on developing new rockets and spacecraft to accomplish that. Few doubted that, given enough money and time, Nasa would be able to duplicate its success of more than 40 years ago.

A permanent moon base could adapt technologies used in building the International Space Station. Nasa was also developing an RV-like lunar vehicle where astronauts could drive around the surface of the Moon for weeks at a time.

But money was the problem. When the program, known as Constellation, did not receive as much financing as originally promised, development fell behind, pushing up the price tag. A review of experts concluded that it would cost $150 billion for Constellation to reach its destination close to the original schedule. The Obama administration instead canceled it.

A new Nasa program similar to Constellation with brand new rockets would be similarly expensive. But a recent Nasa study concluded that the space agency could use smaller existing rockets, coupled with fueling stations in orbit, to reach the Moon within a decade.

A new propulsion system for going to Mars would likely call for reviving old technology — nuclear-powered rocket engines that were originally developed in the 1950s. Nasa has already begun work on nuclear propulsion — nuclear reactors that provide continuous thrust — but lacks the money to finish.

But Gingrich talked of overturning the status quo at Nasa, pushing to work faster, to accept greater risks and let private companies take the lead role.

"It's not something that should be mocked or should be seen as a remote possibility," said Michael Gold, director of the Washington office of Bigelow Aerospace, a private space company. "The reason this is both possible and economically viable is that many of the systems and technology, if not all, already exist."

Bigelow, using technology licensed from Nasa, has plans to launch two inflatable space stations, capable of housing 36 people, and the same technology could be scaled up to provide living quarters on the moon.

Gingrich proposed setting aside about 10% of Nasa's budget for prizes, similar to the $25,000 that Charles Lindbergh won for being the first to fly across the Atlantic, or, more recently, the $10 million X Prize for commercial spacecraft to rise above the 62-mile-high edge of space.

Over eight years, this would create a prize pot of more than $14 billion. Gingrich suggested offering a $10 billion prize for the first venture to make a trip to Mars. If no one succeeds, taxpayers pay nothing. If someone does, $10 billion would be cheaper, by a factor of 10 or 100, than any government-run program.

Large aerospace companies like Boeing and Lockheed Martin would likely pass on the prizes — it would be a tough sell to investors when the payoff could be nothing at all — but Gingrich's allies, like Bob Walker, a former Republican congressman from Pennsylvania, believe that technology billionaires like Jeffrey Bezos, founder of Amazon.com, and Paul Allen, Microsoft's co-founder, would willingly invest their own money in hopes of fame, if not fortune.

Whether any of these ideas could win enough political support is another question. When Obama called for Constellation's cancellation, he proposed Nasa rely much more on commercial companies, echoing many of the Gingrich's themes. Gingrich even wrote an opinion piece lauding Obama's proposed plans. NYT NEWS SERVICE

GIANT LEAP: HOME AMONG THE STARS

What a moon colony would require:

- Rockets capable of carrying astronauts and cargo to the moon. Nasa is developing a new heavy-lift rocket. Gingrich suggests smaller existing rockets could suffice. But smaller rockets would make the mission more complicated because moon-lander pieces would have to be assembled in orbit, as was the Space Station
- A spacecraft that can land on the moon. Such a craft does not exist, but no big technology leaps are needed since Nasa did this more than 40 years ago when astronauts landed on the moon. For a permanent base, a larger craft would be needed to ferry the pieces
- Habitats where the astronauts would live. Years ago, Nasa began preliminary designs but did not progress far before the programme was canceled. A commercial company, Bigelow Aerospace, believes its technology of inflatable modules can be adapted for lunar habitats
- Anything built on the moon would have to withstand the sharp-edged lunar dust and large temperature swings, which go from -129 to +93 degrees Celsius



