

SpaceX says 'reusable rocket' could help colonize Mars

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The vehicle would be a reusable version of the [Falcon 9](#) rocket which [SpaceX](#) used to propel its Dragon [space capsule](#) to low Earth-orbit on a test mission last year. Its first cargo trip to the [International Space Station](#) is set for January.

Being able to reuse the rocket would save tens of millions of dollars and would bring the notion of making trips to visit or even live on other

[planets](#), namely Mars, closer to reality, Musk told reporters at the National Press Club.

"A fully and rapidly reusable system is fully required for life to become multi-planetary, for us to establish life on Mars," Musk said. "If planes were not reusable, very few people would fly."

Currently, a Falcon rocket costs between 50-60 million dollars to build and launch, with fuel and oxygen costs making up just 200,000 dollars. Then, it is lost forever as it burns up on re-entry into Earth's atmosphere.

If engineers could reuse a rocket, that would bring the capital cost of a launch way down and "allow for about a 100 fold reduction in launch costs," he said.

Musk, an Internet entrepreneur who founded PayPal and has used his billions in earnings to start the electric car company Tesla Motors and SpaceX, said others have tried and failed to figure out how to craft a reusable [launch system](#).

"In the last 12 months I have come to the conclusion that it can be solved," he said.

"We are going to try to do it. We have a design that on paper, doing the calculations, doing the simulations, it does work."

The rocket would take off as normal, then separate into its upper and lower stages. The column-like lower portion would make its way back to Earth and hover back down to land upright, in the same position from which it took off.

No wings are needed to steer it back to launch pad, he said.

An animation is at www.spacex.com/npc-luncheon-elon-musk.php.

In the near term, the technology could be used to [launch](#) satellites and take cargo and crew to the ISS, which is presently serviced only by Russia since the US space shuttle fleet retired in July.

NASA has said it hopes commercial companies will be able to have a substitute spacecraft ready to fly people to the ISS by 2015, and while several companies are competing to be the first, SpaceX is the only one that has successfully test launched its unmanned Dragon capsule to orbit and back.

The effort to build a reusable rocket "is a parallel effort... it is not impacting our sending of cargo to the space station," Musk said.

In fact, it would be just about ready to go except for the fact that SpaceX and NASA agree it needs to have some sort of way for its occupants to eject in case something goes wrong.

So a project to build escape thrusters into the sidewalls of the spacecraft is expected to take two to three years, Musk said. After that, the Reusable Falcon 9 rocket may be ready for prime time.

"I think this is pretty exciting and I think everyone in America and arguably the rest of the world should be pretty fired up about what we are doing," Musk said.

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