

## Robert Zubrin zu Elon Musks Marsplan am 29. September 2016

### **Robert Zubrin Comments on Elon Musk's Plans for Mars**

*The following comments were made by Mars Society President and founder Dr. Robert Zubrin following SpaceX CEO Elon Musk's address on 27 September to the 2016 [International Astronautical Congress](#) in Guadalajara, Mexico.*

"In [his talk](#) today, SpaceX CEO Elon Musk presented a number of very interesting and useful ideas. I don't think they are practical in the form he presented them, but with a little modification, they could be made practical and very powerful. He's right on the mark about using methane/oxygen propellant, which can be made on Mars and about making the spacecraft reusable and refillable on orbit.

The key thing I would change is his plan to send the whole trans-Mars propulsion system all the way to Mars and back. Doing that means it can only be used once every four years. Instead he should stage off of it just short of Earth escape. Then it would loop around back to aero-brake into Earth orbit in a week, while the payload habitat craft with just a very small propulsion system for landing would fly on to the Red Planet.

Used this way, the big Earth escape propulsion system could be used five times every launch window, instead of once every other launch window, effectively increasing its delivery capacity by a factor of ten. Alternatively, it could deliver the same payload with a system one-tenth the size, which is what I would do.

So instead of needing a 500 ton launch capability, he could send the same number of people to Mars every opportunity with a 50 ton launcher, which is what Falcon Heavy will be able to do. Done in this manner, such a transportation system could be implemented much sooner, possibly before the next decade is out, making settlement of Mars a real possibility for our time."